



Prevention of Decay of the Teeth.

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I have often been asked "what suggested the possibility of prevention of decay in the teeth, in view of the fact that the mouth nearly always contains acid forming bacteria, an environment certainly suggesting the impossibility of preventing decay?"

In answering, I would say that teeth do not all decay alike. Some decay on one surface, and again on the opposite side of the mouth an entirely different picture may present itself. In some teeth it is rapid; in others slow. These, too, in the same mouth, side by side, when certainly the enviroining conditions appear the same. Again, I have noticed that decay often becomes arrested and the softened and partially decalcified dentine hard; apparently there had been a redeposition of lime-salts. Pyorrhea teeth, with the gums shrunken from about their necks, the pockets filled with bacteria, exposing the dentine, to the solvent action of bacterial ferments, oft do not decay.

Again, I noticed that certain metallic, and other stains (Figs. 5, 6, 19, 20, 21), when absorbed by the teeth, oftentimes would serve to stop decay. Cement fillings, if they adhered closely to the walls of the cavity, so as to be watertight, would often cause the soft dentine to become hard and less sensitive. Certain habits, like excessive use of tobacco and alcohol, seem to have a modifying effect, and I firmly believe have saved the teeth in many mouths that would otherwise surely have been lost through the destructive action of bacteria.

I have noticed a peculiar black and also a reddish-brown stain (Fig. 21), that I have reason to believe are formed by bacteria, appearing on the surfaces of teeth, filling the pits and sulci of the enamel, and forming lines near the gum margin on the approximal surfaces of teeth, and in other places difficult of cleansing, especially marked on the lingual surface of the six anterior teeth of the lower jaw.



FIG. 19.

Skull of man and monkey. Teeth of latter covered with stains, which protect from decay, as wax protects a surface from action of acid.



FIG. 20.

Skull of baboon. Bicuspid and molars protected from decay by stains.

When these bacteria have been present (for I take this stain to mark the presence of bacteria), I have noticed that the teeth will not decay at that particular point, and I therefore hesitate to remove this stain, as I firmly believe these bacteria protect the teeth and prevent their being acted upon by acid forming bacteria (Fig. 22, compare with Fig. 21). I have noticed them beginning to form on the surfaces of the teeth that I have treated by the sterilizing process I shall presently describe, and when I see evidence of their growth beginning, I feel satisfied with my work and assured of success, in the prevention of decay. Examine Fig. 21 and note



FIG. 21.

a—Layer of bacteria which prevent decay. bb—Enamel stained two weeks with eosin and methyl blue.

that there is no mark of disintegration in the enamel under this line of bacteria. Again, under deposits of tartar, there is no decay. Dr. Darby, of the University of Pennsylvania, in his lectures, has gone so far as to state that when tartar begins depositing in a carious cavity, decay is sure to cease. Yet Dr. Williams's pet micro-organism, leptothrix, will be found present by the million.

I have noticed in the examination of animals' teeth that there is but little tendency to decay; in fact, it might be said, that in their wild state, decay is a thing almost unknown. I have found in the teeth of the cats, dogs and bears (Fig. 23), and other exclusively flesh-eating animals,

nothing to indicate that they had in any way been acted upon by acid forming bacteria.

Out of hundreds of skulls which I examined, assisted by Prof. F. A. Lucas, of the National Museum at Washington, D. C., I found but one skull showing evidence of decay. That was from a grizzly bear, that we have every reason to believe, died in captivity. The teeth of animals dying in captivity, Prof. Lucas told me, often show evidence of decay.

In the teeth of the monkeys, limas, deer, sheep and many other animals having a mixed diet, we found their surfaces covered with stains (Figs. 19 and 20). This was especially marked in the case of the cud-chewing animals. The molars and bicuspid of these animals show but little contour, the sides being almost parallel and wonderfully corrugated.

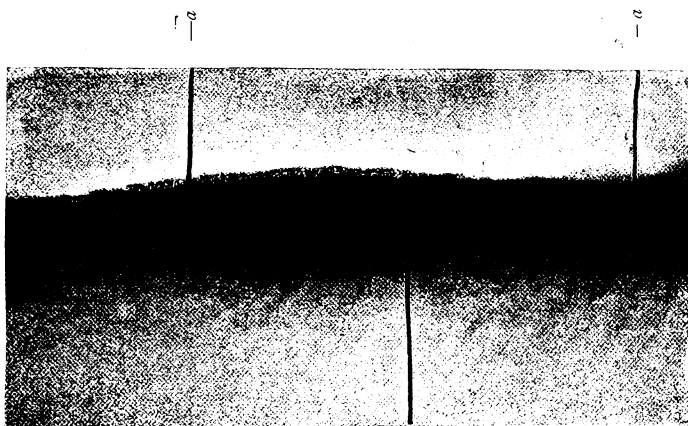


FIG. 22.

Heavy plaques of bacteria, starchy foods, etc. (aa), more deeply stained than the enamel (b).

The edges of the cusps on both the lingual and buccal aspects were exceedingly sharp. The teeth on their cutting surfaces presented deep sulci, and generally imperfectly formed enamel, when compared to the cats and dogs, yet I noticed no decay, nor other marks of pathology, except erosion. There were instances of irregularity, and the pathology naturally resulting from such was as one would expect. The teeth were deeply stained, literally painted on the lingual and buccal surfaces. The sulci and grooves on the occlusal surfaces, in some instances were so deep, that an explorer could be run down into the pulp-chamber, yet there was no apparent sign of caries.

In the case of the monkeys, their molars and bicuspid were generally covered, on their buccal and lingual surfaces, with a thick layer of stain,

that had penetrated the enamel but slightly, for when scratched with an instrument, it was readily removed, leaving the surfaces white and smooth. I cannot but believe that this stain, appearing on the teeth of the animals having a mixed diet, protects them from the action of free acids, so plentiful in the foods of the tropics.

The anterior teeth of the monkeys often showed signs of pathology. They were abscessed, and in many instances, decayed. Many of the baboons' teeth showed white spots, quite evenly distributed over their surfaces, an evidence, to my mind, of their having been acted upon by free acid.

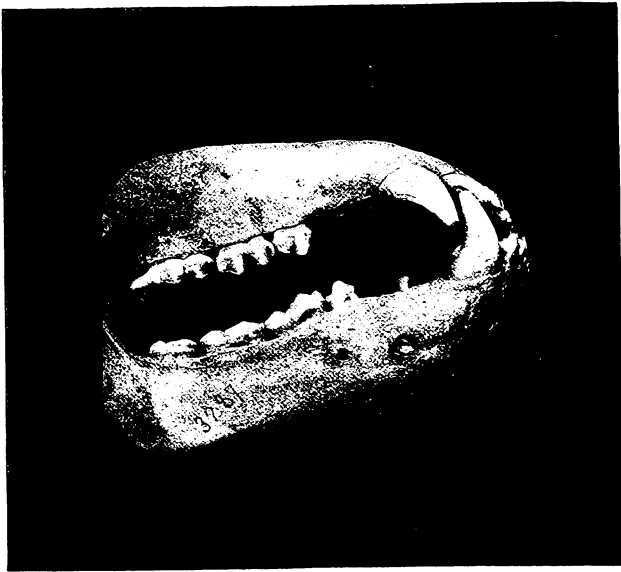


FIG. 23.

Jaws of black bear. Teeth quite free from stains.

In the examination of human skulls, the Esquimaux, whose diet is almost entirely meat, presented the most beautiful and perfectly formed teeth I have ever examined (Figs. 24 and 25). They were low in the sockets, the enamel evidently covered for a considerable extent by the cementum and gum; there was an edge to edge bite, and scarce if any evidence of pyorrhea alveolaris. Those that I studied in the National Museum did not show any signs of decay; they were badly worn and often gave evidence of much erosion, but there was no decay, as seen where acid forming bacteria have been growing.

In the Mound Builders, Indians, and the skulls of the ancient Peruvians, Aztecs, etc., where we have reason to believe the diet was a mixed one, I found abundant evidence of decay, pyorrhea alveolaris, erosion, in fact, nearly all the pathology with which I am familiar, including antral abscess and necrosis. I found their teeth stained and covered with tartar; also teeth badly worn, showing far more abrasion than in the Esquimaux, and in a few cases as bad decay as I have ever seen. That there were not more evidences of decay present in these skulls, I believe is due to the

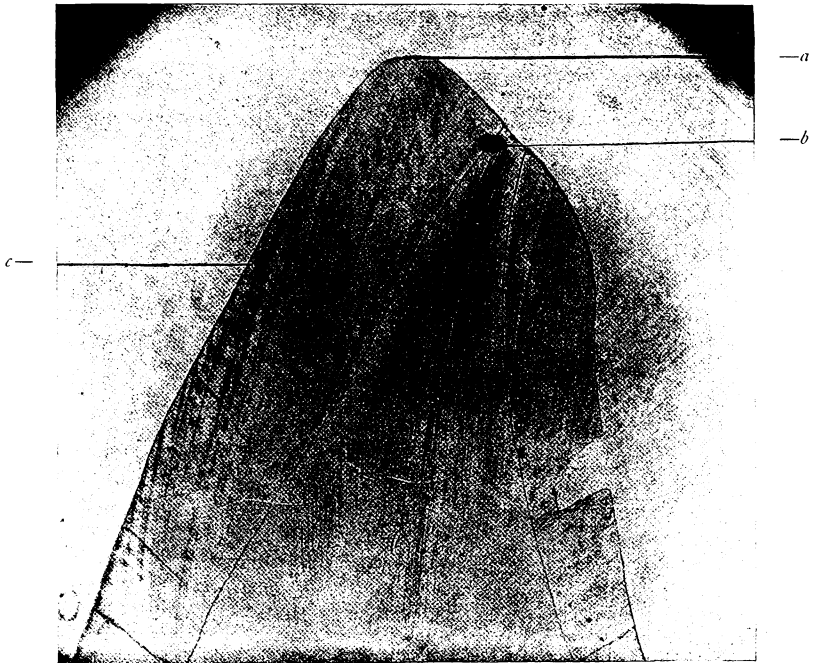


FIG. 24.

Esquimaux incisor. a—Tip of enamel. b—Air bubble; dentine exposed by abrasion but free from caries. c—Enamel almost perfectly formed.

excessive use of food with which there had become mixed particles of sand and other substances of a gritty nature, which acted both as toothbrush and tooth powder to their teeth.

The edge to edge bite, in the Esquimaux, Indians, Mound Builders, ancient Peruvians and Aztecs, has greatly interested me. No one to my knowledge has ever called attention to this fact. This, I noted, in most of the skulls examined in the National Museum, as well as in the Peabody Museum of Harvard University. Dr. C. S. Hulbut, Springfield, Mass., told me that there were over 200 skulls of Russians in the Museum

at Baltimore, Md., brought by Dr. Mannard from the battlefield of the Crimean War, all with edge to edge bite. I feel quite sure that this articulation is the normal one in many races of man.

Now I wish to direct your attention to the work of Dr. G. V. Black (see *Dental Review*, February, 1897, page 83). He says:

**Black's
Views.**

"But the question as to how the first attacks upon the surface of sound, firm enamel were made, was still waiting for clear, definite demonstration. Dr. Miller has been non-committal on this point. I have

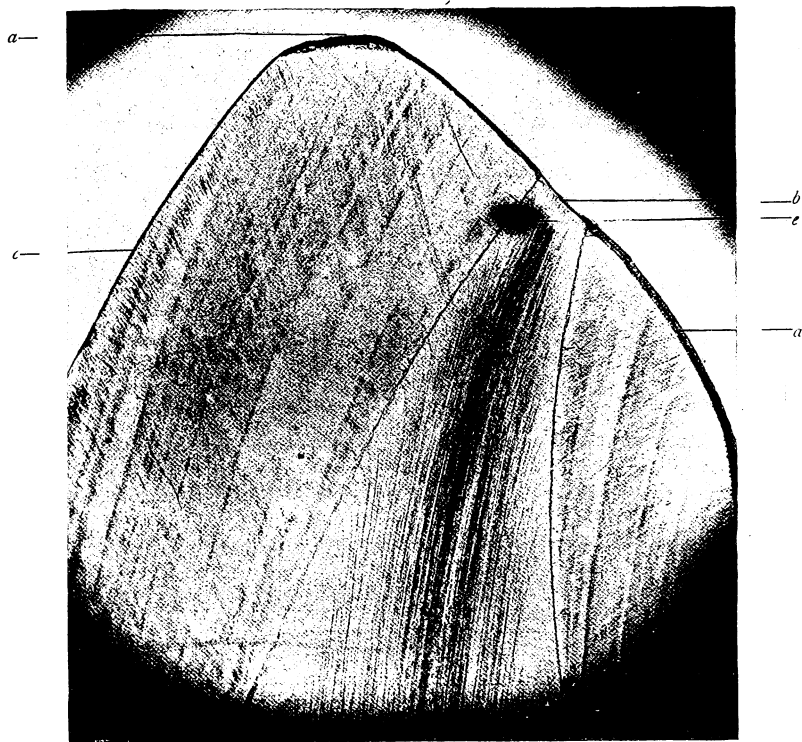


FIG. 25.

Fig. 24 under higher power. a—Tip of enamel slightly affected by acid. b—Dentine exposed by abrasion, but not decayed. c—Almost perfect enamel. d—Section thick here, and edge shows in photographing. e—Air bubble.

been more definite, but have always fallen short of actual demonstration that would give the weight and influence and actual certainty. Now, Dr. Williams has found the means of showing all of this as it occurs under natural conditions in the human mouth, together with the immediate effects upon the enamel. This effect of the acid products of the micro-

organisms is much like that which has been described by myself from other modes of examination." (He does not want Dr. Williams to get too much glory or praise out of this wonderful discovery, about which Dr. Miller has been so non-committal.) "That is, it is found to consist, in the first instance, in the solution of the cement substance by which the enamel rods are held together, and finally the much slower solution of the rods themselves, and the gradual breaking up of the tissue. The effect in the enamel was distinctly the solution of the cement substance between the rods, causing these rods to stand distinctly apart; in some the whole thickness was thus affected before any rods fell away. It was curious to note how this effect was confined to portions of enamel, the surface of which

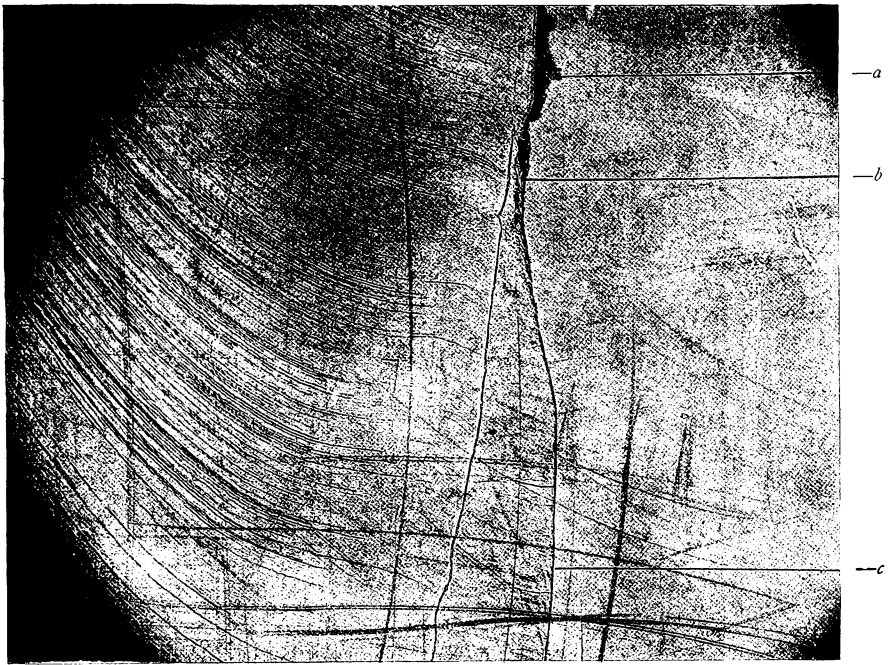


FIG. 26.
a-b—Peridental membrane and cementum overlapping enamel. c—Enamel,
no evidence of bacterial action.

is covered by the film of micro-organisms. So constant is this, that Dr. Williams is of the opinion that the beginnings of caries occur in no other way. In other words, acid saliva has no influence in causing the beginning of caries. Acids distributed in the saliva have no influence in causing caries. It is solely acids produced beneath these films of micro-organisms that are responsible for the beginnings of caries."

These are his own statements, backed up by the work of Dr. Williams. Now let us see if Dr. W. D. Miller, of Berlin, has been non-committal on this point of giving any explanation as to how the first attacks upon the

surface of sound enamel comes about. See *Cosmos*, January, 1883, page 2. He writes:

**Miller's
Theories.**

"There is no difficulty in accounting for the source of the acids concerned in the caries of the teeth. The saliva is impregnated with acids in various special and general disorders of the system; acid is brought into the oral cavity with the food and in the administration of medicines; but by far the greater part in the decalcification is to be attributed to those acids which are produced within the mouth by fermentation, viz., lactic, acetic, butyric, etc. A mixture of 68.0 grammes saliva, No. 1.0 bread, No. 0.5 meat, No. 0.5 sugar, kept for forty-eight hours at the temperature of the human body, generated more than enough acid to decalcify the entire crown of a molar tooth. Portions of food remain lodged between the teeth, or in fissures and depressions in the teeth themselves, or in cavities of decay, and lead to the production of acids sufficiently strong to at once attack the teeth.

"The general impression that these acids are produced by the fermentation of meat in the oral cavity is wrong. Meat of any kind, either raw or cooked, kept in contact with saliva at the temperature of the human body, never shows more than a slight acid reaction, and in the course of ten or twelve hours becomes invariably neutral or even alkaline. (See Figs. 24 and 25 from an Esquimaux's skull.)

"On the other hand, bread, potato, rice or other starch containing foods, under the same conditions, produce a decided acid reaction, distinctly evident both to taste and smell, and maintain it for weeks. We therefore should not be surprised to find now and then even an alkaline reaction in cavities of decay. This would occur when they become filled with meat *exclusively*, which was allowed to remain in place for some twelve or fifteen hours.

Enamel contains about three and a half per cent. of organic matter, therefore the very delicate (organic) network, which remains after decalcification, falls to pieces of itself or is torn away by the action of mastication. Decalcification of the enamel (generally) signifies total destruction of that tissue. Dentine, on the other hand, contains twenty-three per cent. of organic matter, and after the lime has been extracted there remains a tough, spongy mass, consisting (chiefly) of the organic part of the basis substance of the membranes surrounding the dentinal tubules and the contents of the latter."

There remain still to be answered, the questions: Do bacteria ever penetrate directly into perfectly sound enamel or dentine, and do they perform any part in the decalcification? He says in drawing his conclusions from experiments to solve the above questions:

"I have already referred to the gradual diminution of the bacteria in number, as we go from the outer to the inner margin of the preparation, till at the inner border few or none of the tubuli are found to be infected. This fact, which leads us to the conclusion that the micro-organism cannot penetrate beyond that point to which the tissue has been softened by the action of acids, may be readily confirmed by the examination of the softened tissue taken from different depths of a cavity of a carious tooth. It

is, with the proper precaution, always possible to obtain enamel and dentine which have evidently been subjected to the action of acids, and which yet do not contain any bacteria. Whatever power of decalcification the micro-organisms associated with decay of the teeth may possess, it is, when compared with the power of acids generated by fermentation, so small as to merit very little consideration, and that the extraction of the lime-salts is, for the most part, caused by these acids which are generated in the mouth by fermentation."

It seems to me that Dr. Miller has been far from non-committal on this point that Dr. Black would lead us, to believe that he and Dr. Williams have discovered. For my part I can see nothing new nor startling in the work of either of these men, except their conclusions, which are all wrong, and without the slightest possible foundation.

You have heard what Dr. Black has to say of his and Dr. Williams's work, now let us get it straight from Dr. Williams himself. (*Cosmos*, May, 1897, Figs. 37, 70, 81.) He says in his description of Fig. 70:

**Theories of
Williams.**

"It is seen that the acid has dissolved out channels between the enamel rods, and is splitting up the rods into their original formative sections for a considerable depth." Again on page 376, Fig. 77, "We see the manner in which the enamel rods are torn down at the commencement of decay by the solution of the cement substance which unites the sections of the rods and also the rods to each other. The acid product of the bacteria, it is seen, has dissolved out the cement substance between the rods." Now that we may clearly understand the doctor, see *Cosmos*, Feb. '98, page 90. "Have I not said as plainly and as clearly as I know how to say it, that enamel is built upon an organic substructure which, except in rare instances, becomes completely calcified?" Now, so that this shall be clear, see *Cosmos*, May, 1897, page 358, Figs. 37, 78, 79, 81. "The destruction of enamel in this manner may be compared to the method of tearing down a brick or stone building, by the removal of the cement which binds the bricks or stones together." In describing Figs. 37, 81 and 82, he says: "The cement substance is almost completely dissolved away, and the original organic matrix, now of course completely calcified, is most strikingly exhibited." On page 359, of the same number, he continues: "It is purely a chemical process, and consists in the removal by an acid of the veil of cement substance, which always conceals the true structure of enamel."

I think this last statement removes any doubt as to his belief that acids dissolve out the cement substance. I do not agree with him, and think he has failed to prove his position that the intercellular cement substance becomes completely calcified. I think his micro-photographs, if they prove anything, prove that such is not the case, and that Heitzmann, Andrews, Miller, and others of the old school are right in their belief that adult enamel still contains organic matter that has not been completely calcified.

Clinical experience is of great importance. I am constantly meeting with teeth in which the enamel is extremely sensitive, evidencing, to my

mind, the presence of nerve filaments. Dr. Williams admits that there are human teeth in which the dentinal canaliculi are continued into and sometimes quite through the enamel. See Fig. 33, page 271, *Cosmos*, April, 1897. This illustration shows the fibrils quite plainly, to my mind, and beautifully explains what clinical experience has long suspected.

Why Dr. Williams should bring before us in argument, a photograph like Fig. 47, page 282, *Cosmos*, April, 1897, that is certainly not in focus, shows evidence of being jarred, and is very poor in comparison with Fig. 48, I cannot understand. Such argument fails to convince, and creates unnatural prejudice to the rest of the work. I wish you to examine Fig. 48. It is quite good, and shows the uniting of the calco-globular bodies already so beautifully described by Dr. R. R. Andrews, of Cambridge, Mass. Now, with reference to decay, he says: "Any imperfection of enamel structure which implies deficiency of calcific material, makes much less work for the true destructive cause."

And so that we shall not be left in doubt as to what he means by deficiency of calcific material, he directs our attention to the teeth of fishes, Fig. 49, page 284, *Cosmos*, April, 1897, in which there is abundant evidence of organic matter in the enamel and whose teeth never decay. He argues that they would, in the human mouth, because they contain less calcific material (and more organic matter).

Evidently he believes that organic matter is more soluble in acids than is the lime salts, for he says that: "Bulk for bulk (see Figs 49 and 50) the enamel from the teeth of these fishes contains much less calcific material than the same bulk of enamel from a human tooth, and it would doubtless decay much more rapidly." He then adds: "In view of what has been previously demonstrated, and of what is clearly shown in the illustrations accompanying this paper, I do not see how any one can take up any other position than this."

And that is, gentlemen, that acids of the mouth dissolve out the organic matter before they do the lime-salts. How he has permitted himself to thus err in his conclusions, so adverse to the laws of the science of chemistry, and the teachings of Drs. Miller, Heitzmann, Andrews, and others, I am at a loss to understand. Surely had he studied the writings of Dr. Miller he would never have written his basic principles of decay of the teeth. Now, let us see what he has to say of the highly organic matrix separating the enamel from the dentine.

On page 360, *Cosmos*, May, 1897, he writes "The line of least resistance seems to be the exact point of union between the enamel and the dentine. This is what one might expect, as both tissues are usually more imperfect at this point than elsewhere." He does not leave any doubt about his belief in the solution of this organic matrix by acid, yet when

we examine Fig. 39, page 276; Fig. 51, page 286, and Fig. 75, page 359, in all these photos, where there is more organic matter than anywhere else in the enamel, the dentine is apparently more immune to the action of acid forming bacteria. Now, if this line marked the point of least resistance, why does not the acid and bacteria follow it clear around in place of going almost straight into the dentine, in which case we would have the enamel peeling off, like the layers off of an onion?

I desire at this point to again direct your attention to my microphotographs, showing that the enamel has been acted on by acid ferments of bacteria. I want you to compare these photographs with those of Dr. Williams, Figs. 14 and 16; also see *Cosmos*, '97, Fig. 98, which he contends show imperfect development of the enamel. Dr. Black teaches that this discoloration (see Figs. 9, 10, 11), shows the action of acid ferments found under these bacterial plaques, producing disintegration by the solution of the organic matrix, as is also contended by Dr. Williams for his Fig. 5. The line (see Figs. 9, 10, 11, b), which Dr. Black terms the line of least resistance, because of the unquestioned abundance of organic matter here present, actually inhibits the solvent action of the ferments resultant from bacterial growth, by reason of the protection afforded to the lime-salts of the dentine. Therefore, I am inclined to believe that it is the abundance of organic matter present at this point that often serves to arrest dental caries. Rarely, if ever, do we see the dentine decaying up under the gum, while the cementum and peridental membrane adhere to the dentine. (See Fig. 26 a b.) The enamel may decay at the gum line, but so long as the cementum and peridental membrane overlap the enamel, as is seen in Fig. 26, just so long will the dentine at this point be unaffected by the ferments of bacteria.

Dr. Williams, in the *Cosmos*, February, 1898, in an article purporting to be "Scientific Criticisms, Etc.," because the president and others thought absolute knowledge had not been discovered by himself and Dr. Black, expresses considerable surprise, but nevertheless continues with this deluge of infinite knowledge, viz.: "It is no longer possible to speak of tooth structure as a cause, or as a direct antecedent of dental caries. This variation (in enamel structure) has no direct relation to the cause of dental caries."

His play with words is again as follows: "When this cause, namely, acid forming micro-organisms (saprophytes, free acids, the vital resistances of the cellular structure of the body, he has declared unimportant), is present and active, variations in tooth structure (only) exercise a modifying influence on the progress of decay." But influence and cause evidently have no relation, for he says: "But a modifying influence is a totally different thing" (from a cause).

I have always been taught to consider influence as manifesting power—that cause produces or effects results. Cause is a substance exerting its power into act; to make one thing begin to be. Cause, I take then, to be a force manifesting itself as influence. Cause is not influence, but influence is one of the many manifestations of power. Heat, light, electricity, acids, etc., are media for the manifestations of force, but they are not force—not cause. Neither can acids, whether free or resultant from fermentive action of bacteria, nor imperfections in tooth structure, be called causes. They serve as media for the manifestations of forces. Whether you will be pleased to believe with me that life and decay are but the manifestation of the one *Great Force* of vast importance in the solution of many problems, I care not. The last thought is given as a suggestion and not in the line of evidence.

Dr. Williams says that Dr. Jas. Truman will persist in saying that decay of the teeth is primarily due to a degeneration which has taken place in the tissues of these organs, either in the individual or through successive generations; in this view I still think there is much truth.

The argument, as presented by Dr. Williams, which is in substance, "that almost every form of tooth structure which has been classed as pathological in human teeth, is to be found in the teeth of wild animals, where caries is almost unknown." See *Cosmos*, March, 1897, Figs. 1, 2, 8, 9, 11, 14. These micro-photographs he interprets as showing forms of imperfection, not decay, but faults of structure in the substance of the enamel, of which he says, "I simply point to the facts, and it is folly for Dr. Truman, or any one else, to kick against these facts."

And these facts are that these micro-photographs do not show disintegration of the lime-salts, but rather imperfections of enamel development. I must say, I think he is entirely wrong. See Figs. 75, *Cosmos*, '97; *Cosmos*, July, '98, 11, 21, 31, sections of human teeth which, according to his own words, show commencement of caries, and therefore disintegration of lime-salts.

Now, if these micro-photographs show the action of acid forming micro-organisms, and this he himself argues is a fact, then I take the Figs. 1, 2, 8, 9, 11, 14, to which he refers us as showing forms of imperfection of enamel structure, to show unquestionably the action of acids. I think he justly deserves the word-lash used upon him by Dr. Truman in that, "This (idea) must be regarded as a pure creation of the imagination, as no one at all intelligent upon the subject would make such a statement."

In view of the fact that Dr. Williams has openly charged Dr. R. R. Andrews with plagiarism, together with the statement, "That much of Dr. Andrews's writing is marred by a lack of clearness and explicitness" (all

of which I think untrue and uncalled for), I say, in view of these facts, I trust you will pardon the lengthy quotations from his papers, as published. I expect him to rail against me, as only he can do, in his masterly English. Ridicule and science with him are evidently synonyms. I shall not be in the least surprised, nor feel at all hurt if this great scientific light, who declares himself possessed of absolute knowledge, equal to God himself, as does Dr. Bonwill with his equilateral triangle and articulator, should ridicule my work or express contempt for my English.

Dr. Williams confesses that in the preparation of his paper on enamel decay, it never occurred to him that there would be any question raised about the acid producing functions of the micro-organisms shown. I have not read any criticism questioning the fact that the acid ferments resultant from bacterial growth would dissolve out the lime-salts of enamel. The questions as I understand them, are how these ferments act, and whether the leptothrix forms which he has mentioned really have the power of producing acid.

Both he and Dr. Black, in this formidable array of what purport to be basic principles, only make mention of acid forming bacteria. They alone are responsible for the decay of the teeth and subsequent pathological changes in the pulp and soft tissues, yet Dr. Miller, in his articles called non-committal by Dr. Black, says that "The micro-organisms associated with caries of the dentine are not a factor of any importance in the production of either pulpitis, periodontitis, or alveolar abscess."

Gentlemen, these are the words of Dr. Miller, whom they would lead you to believe is in perfect harmony with their conclusions. Why they have been so non-committal on the action of saprophytes or other fungi that Dr. Miller and other bacteriologists have conclusively shown to cause the destruction of the organic portions of the teeth, the infection of the pulp tissue, the cementum and peridental membrane, I do not understand. It would seem, however, the discovery that acid would dissolve out the organic matrix before the lime-salts, was too much even for such colossal minds. The effort to think God's thoughts has evidently blinded them to the work of mortals.

Let us consider some more of Dr. Williams's conclusions in this most remarkable article that has quite paralyzed the dental profession. He says in conclusion, "We may, I believe, sum the whole question up by saying that, if the environing conditions of the teeth are such as to favor the development and activity of acid producing bacteria, and if those bacteria are permitted to become attached to the surface of the enamel (and I take it he means dentine also) (they) are doomed, although the most perfect that was ever formed."

Our attention is directed to Fig. 99, showing leptothrix as one of the

environing conditions producing ferments, yet Dr. Miller has positively stated that such is not the case, and of dentine he says (*Cosmos*, 1883, page 4):

"Under certain conditions a reaction may now take place accompanied by a redeposition of lime-salts and a hardening of the softened dentine, and a permanent cessation of the carious process. Practical experience teaches us, moreover, that the fungi of tooth caries can have little to do with the decalcification of the teeth. It is well known that tartar is filled with masses of leptothrix in all its forms of development, and teeth imbedded in tartar we would expect to find bored through by the organisms (*Leptothrix bucalis major and minor*) continually acting upon them. But if we remove the tartar from a tooth which has been enveloped for forty years, if you like, we will find the tooth perfectly free from caries. I have found, moreover, in the mouths of dogs and cats and other carnivora, especially when they were suffering from pyorrhea alveolaris, such masses of leptothrix as I have never met with in the human mouth, without a trace of caries and without an acid reaction."

These are Miller's words, and in the face of these facts, Dr. Williams has the audacity to argue (pages 368-374, *Cosmos*, May, 1897), and confront us with micro-photographs of leptothrix as conclusive evidence that they are one of the direct causes of enamel disintegration. Gentlemen, he presents this as evidence, terms it "a long string of facts about which I have expressed few opinions." Better for himself and the profession had he kept silent. No one, to my knowledge, who has followed Miller in his admirable work by a repetition of his experiments, could possibly doubt that the mouth contains acid forming bacteria, but that they are the sole cause of enamel disintegration, only Drs. Williams and Black have attempted to prove. They surely cannot explain erosion as being resultant from the action of acid. From my work thus far I am inclined to believe erosion is the result of the removal of the organic matter from the teeth partly by action of saprophytes. I trust to be able to shortly give some proof for this statement. I have found erosion in flesh-eating animals, the dogs, cats, and bears, etc., and also in the monkeys and animals of a mixed diet. My clinical experience has been that erosion and decay rarely go hand in hand. We find smooth, polished surfaces, glistening and extremely sensitive. Acting on the belief that the solution of the organic matrix was accomplished by saprophytes and other fungi, perhaps leptothrix, I have treated these surfaces so as to make them insoluble by making the tooth take up some of the nearly insoluble metallic salts like nitrate of silver and chloride of gold, chloride of zinc. Formaldehyde has also given me excellent results and produces no discoloration of dentine or enamel. Why the vital forces present in tooth structure should be thought as unimportant, and to play only a subordinate part in dental caries, I cannot explain. Dr. Williams offers no explanation why teeth with pyorrhea alveolaris do not

decay, although according to his own theory they ought, for in these pockets and covering the teeth, especially the roots, leptothrix and other forms illustrated in his micro-photographs are present in millions. Surely *we have* present the enviroing conditions, according to his own views, yet these teeth are generally quite immune to decay. Again, take those little spiculae of roots, the remains of deciduous teeth. The crowns are gone, yet these little pieces remain quite free from decay.

Dr. Williams's statement that the organic matrix is completely calcified, I think he has failed to prove. I shall continue to accept as nearly true the percentage of organic matter said to be present by Dr. Miller and our various chemists. His hypothetical dogma, offered in explanation of the decay of enamel and dentine, I regard as a masterly piece of English, but it is facts, and not fine writing, which the profession is demanding of those pretending to do scientific work.

I am inclined to believe that acids effect disintegration of enamel and dentine by the decomposition of the lime-salts direct, and not by solution of the intercellular cement substance. That this disintegration is along the lines of least resistance to the acids, which, by reason of the formation of enamel and dentine, is in nearly straight lines, the enamel rods being nearly parallel as are the walls of the tubuli in the dentine. The immediate action of the acid on the organic portion of the tooth would be in a shrinkage and not a solution, owing to the removal of a part of the water of combination. The action of acids on organic matter is too well known to be disputed.

You will remember when studying anatomy, we were told that the bones are composed of organic and inorganic substances, the proof of which could be demonstrated by placing the wish-bone of a chicken in dilute acid; after a few days the inorganic substance would have been dissolved out, leaving the organic. If now removed it would then be flexible and readily tied in a knot. Fire would remove the organic, and if placed in acid, the bone would quickly disappear.

So the shrinkage in the organic matrix of the tooth makes it sponge-like, full of capillary tubes, exposing the lime-salts to the direct action of the acids. But when the acid has penetrated the enamel to the line of union between the enamel and dentine, as I have already said, decay may be arrested owing to an insufficiency of the acid in strength to sufficiently shrink this highly organic protection, so as to make any holes through which the acid might pass. When once thus affected, and the acids begin to cause the shrinkage of the contents of the tubules, the disintegration is very rapid, and the cocci can be seen entering the canal in the form of wedges.

**Importance of
Vital Resistance.**

I believe so-called dead teeth decay more rapidly than live ones, owing to a shrinkage in the organic matrix of the teeth by reason of removal of the pulp.

I would advocate the conservative treatment of the dental pulp if for no other reason. I am one of those who believe that the removal of a pulp from a tooth generally weakens it, and makes it more easily destroyed by the ferments of bacteria, by reason of the shrinkage of the organic constituents of the enamel and dentine, creating capillary tubes into which the ferments of acid forming bacteria are the more readily drawn. The more healthy the pulp and vital structures of the tooth, the better able will the tooth be to withstand the action of acid forming bacteria. We cannot get away from the influence of the vital force, so helpful in enabling us to resist the action of these low forms of plant life.

It seems but reasonable to me to follow the teachings of my dear friend and teacher, Dr. James Truman, who taught me to believe in the vital power of resistance on the part of the healthy tissues of the body. I believe as long as they perform their functions in a normal manner, we shall find but little pathology. The field mouse that is normally immune to anthrax bacillus, if compelled to turn a wheel all day, becoming almost completely exhausted, will now, if inoculated, succumb to the growth of anthrax bacillus. So with man. When run down in health, his tissues weakened in their power of vital resistance, do you wonder at his succumbing to attacks of bacterial disease, to which previously he was immune?

A pregnant woman is far more apt to be attacked with bacterial diseases, than when in her normal state. The tissues of the body are being taxed to their utmost and her teeth decay more rapidly. And is it to be marveled at? Certainly the vital powers of resistance are lessened. Nature is presenting to us her most wonderful work—race perpetuation. In many of the lower forms of life, death immediately follows. Now a woman in the condition I have mentioned, is an abnormal creature in very many ways. She is whimsical and capricious in her diet, choosing foods containing excess of starches and sugars, partly because her teeth are so sensitive that effort in mastication of harder foods gives her pain. I say she is abnormal. Her heart, liver, kidneys and other organs are hypertrophied; the cells are overworked, and the vital resistance of the tissues greatly lowered. Do you wonder that bacteria grow with such rapidity, and that her teeth decay? Lower the resistance in the vitality of a tissue, and you multiply its susceptibility to the action of bacteria. I am not one to say that the lime-salts are lessened in her teeth. I do not know anything about that, but I do know from the study made of this condition by others capable of judging and forming an opinion, that the bones and soft tissues are affected during pregnancy, and I can see no possible reason why the teeth might not be.

(To be Continued.)

Knowledge in Relation to Alloy Fillings.

By GEORGE EDWIN HUNT, M.D., D.D.S., Indianapolis.

Knowledge is power, sometimes. Applied knowledge is always power but, unfortunately, knowledge is not always applied.

During the past few years many papers have been read and many discussions have been held regarding the preparation of cavities for amalgam fillings, the amalgamation of alloy, the insertion of it in the cavity, and its final finish. All of this has been done with a desire on the part of those engaged to arrive at a higher state of efficiency and a hope of making better fillings with this much abused and universally used material. And in none of these papers and discussions has the slightest reference been made to the fundamental point in a perfect amalgam filling, the composition of the alloy itself. The chief reason for this is the failure to apply the knowledge that has been freely given us by investigators in this line of work.

Chemical Properties of Constituents of Alloys.

There are six metals used in the making of modern alloys. Two of these, silver and tin, are indispensable and are present in all. One or more of the other four, gold, copper, zinc and platinum, may be present. Silver is the metal in the alloy which gives strength, hardness, and density to the filling. It expands during and after amalgamation. Tin is the flux in the combination and contracts during and after amalgamation. It has been a known fact for years that the shrinkage of about forty per cent of tin, during amalgamation and subsequent hardening of the mix, will be overcome by the expansion of about sixty per cent of silver. This was stated by Dr. Flagg years ago, was confirmed by repeated experiments in the hands of competent investigators, has been reaffirmed by Dr. Black, and re-confirmed by other later investigators. The word "about" is used because the addition of other metals, as gold, copper, zinc, etc., will affect the shrinkage or expansion as their tendency to shrink or expand varies from that of silver or tin, and according to the quantity of the latter metals which they displace. So, an alloy made of silver, sixty and tin, forty, if properly amalgamated and inserted will shrink or expand little if any, thus fulfilling two of the requirements of the ideal amalgam, namely, one that will not shrink, expand or change color. An alloy of silver and tin alone, will change color.

Gold. Gold in sufficient quantity in the alloy insures the retention of the white color of the filling by preventing oxidation. This "sufficient quantity" varies.

If there is no copper present, one per cent of gold will be sufficient. If there is much copper present, no proportion of gold will suffice to prevent oxidation. Five per cent or more of gold in connection with sixty per cent or more of silver, and the balance tin, makes an alloy that neither shrinks nor expands, and sets very rapidly on amalgamation.

Copper. Copper in any quantity will discolor amalgam. The use of from three to five per cent of copper in connection with sixty per cent or more of silver, the

balance tin, makes an alloy that neither shrinks nor expands, and which sets rapidly when amalgamated. So there are two metals, gold and copper, which will make a quick setting alloy when combined with sixty or more per cent of silver. The use of gold makes an expensive alloy. The use of copper makes one that will discolor. Copper has been greatly lauded in the past as a "tooth saving" ingredient in alloys, and in many it was a most valuable element. Copper oxidizes so readily and extensively in the mouth that its oxide in those alloys which shrink because of a lack of silver, will fill the space left between the amalgam and dentine and often preserve the usefulness of a filling which without its assistance would quickly be lost by the recurrence of decay. But using copper in an alloy in order that it may oxidize and perhaps overcome the disadvantages caused by the shrinkage due to a lack of silver, is like soldering bad fitting cusps on a band and then pushing small clippings of plate into the open spaces and flowing solder around the whole. It is a makeshift piece of work. If the alloy is properly made to a proper formula, it will not need the oxidation of the copper to save the integrity of the filling. Copper will also impart hardness to an alloy that has so little silver as to need additional solidity.

Zinc. Zinc has no particular advantage in an alloy except as a cheap substitute for gold as a color retainer. The oxide of zinc being white, the metal is sometimes used to offset the discoloring effect of copper, or, in combination with silver and tin alone, to make an alloy which "does not discolor much." The use of more than two or three per cent of zinc will result in a honeycomb, or rotten stone amalgam of little strength and no density.

Platinum. Platinum is of no value in an alloy except to give an air of distinction to the name on the package. It is never used in sufficient percentages to have any influence on the amalgam even if it had any value, and it has none.

**Affinities of
Metals During
Amalgamation.**

So much for what the metals will do in an amalgam. Now to glance a moment at their effect on the *mixing* of the amalgam. If pure tin shavings are placed in the mortar and mercury added, an amalgam results at once with little or no trituration. The affinity of mercury for tin is very great. If pure silver is placed in the mortar and mercury added, amalgamation will be very slow, even if vigorous trituration is used. So that, as silver is added to tin in the alloy, more patience must be used in the mixing of the amalgam. The difference with which a fifty per cent silver and a sixty per cent silver alloy mixes is very noticeable. The latter requires much more trituration.

The addition of small percentages of gold, copper, or zinc do not appreciably affect the mixing of the alloy. The addition of larger percentages of gold or copper, to an alloy containing sixty per cent of silver makes a compound requiring larger quantities of mercury to produce amalgamation, rapid mixing and hasty manipulation because of its quick setting properties. The addition of larger percentages of zinc makes a harsh working alloy which develops considerable heat on amalgamation.

And now we come to the point—the deduction from all this. Silver to the extent of sixty or more per cent is the most important metal in an alloy. Silver to the proportion of sixty per cent makes an alloy which requires more time and trouble to amalgamate than the “easy, smooth mixing” alloys that have been the delight of the profession in the past and which contained fifty per cent or more of tin. So that the dentist has his choice. If the essential point to him in an alloy is that it shall mix quickly and easily, one containing fifty per cent or less of silver is what he must use. If he does not mind a half minute more manipulation at the time of mixing and a non-shrinking amalgam is desired, the alloy must contain sixty per cent or more of silver. Rapidity of amalgamation and the quality of non-shrinkage cannot be combined in the same alloy. No worse recommendation can be found for an alloy than that it amalgamates easily and quickly. That is a certain indication that it contains too large a percentage of tin.

The sooner the dental profession applies the knowledge that they have regarding the formulas of alloys, the sooner will they get definite results from their amalgam fillings. The majority of the profession—a majority which, it is a pleasure to state, is being decreased year by year—still select their alloy on account of its easy mixing qualities, to condemn it in a year or two when they see the results of its use, and to try another for the sole reason that it mixes easily and quickly when the mercury is added. All the trouble and pains that may be taken in shaping the cavity and in-

serting and finishing the filling are useless if the alloy is one that will shrink after amalgamation. To avoid that shrinkage, the proper quantity of silver must be present in the alloy. When that proper quantity of silver is present the alloy requires more thorough manipulation and more care in making the filling.

It may be well in closing to call attention to the fact that while alloys with sixty per cent. or more of silver are not easily amalgamated, all alloys difficult to amalgamate do not contain the necessary quantity of silver. An alloy containing from three to five per cent. of zinc is quite difficult to amalgamate, even if it only contains fifty per cent. or less of silver. So that, while it is certain that quick, easy mixing alloys do not have a sufficient quantity of silver in them, it is not so certain that alloys difficult of manipulation have the desired quantity of silver. An unscrupulous manufacturer may have added a quantity of zinc to the alloy, rather than to put in the more expensive metal.

The first requisite to a successful amalgam filling is a scientifically prepared alloy, one with the proper proportions of silver and tin. After securing that the best methods of preparing the cavity, making and inserting the mix, and finishing the filling, will be of some value. If the profession will demand an alloy with the proper proportion of silver, the manufacturers will supply it.

Electro-Deposition of Gold.

By Dr. L. B. WILSON, Cumberland, Md.

In the practice of electroplating with gold, the bath employed is usually heated, as the deposits obtained in such a bath are more tenacious and durable and of a better color, besides which recommendation a greater quantity of the metal may be deposited satisfactorily from it in a given time than from a cold bath.

When work plates "foxy color," as it is termed, this is either owing to the presence of too much cyanide, excess of battery power, or exposure of too large a surface of anode. When this defect shows itself, raise the anode a little and keep crown or bridge in motion while in the bath, or remove the anode altogether and move the work about in the solution for a few seconds. The power of the current should be diminished or the anode will be wasted.

The apartment in which electro-deposition is carried on should be kept as dry as possible, and the temperature at about sixty degrees Fahrenheit. In warm weather when the apartment assumes a higher

temperature, the strength of battery power should be regulated accordingly, otherwise deposition will take place too rapidly.

It is always advisable to anneal the anodes and wires before using them; also allow amalgamated rods or plates of zinc to dip into a shallow vessel containing mercury. This vessel should be placed at the bottom of the battery jar and the plate allowed to rest in it while the battery is in action.

Whenever there is evolution of gas at the negative pole during the operation of plating, it is a sure sign either that the battery power is too strong, the surface of anode in solution excessive, or there is too great an excess of cyanide in solution. There should be no effervescence whatever at the negative electrode, if the operation is proceeding satisfactorily.

The anode, or positive pole, is that wire which is attached to the carbon of a battery, and to this wire or pole is suspended, in close contact, the plate of metal which is destined to resupply the solution with the amount of metal which it loses by the deposition, which takes place on the cathode or work to be plated.

The cathode, or negative pole, is the wire which issues from the zinc plate bar of a battery, and it is this wire or pole, or any metallic surface which may be attached to it, which receives the deposit in the bath.

Cyanide should never be added to a gold bath until it has been fully proven that tardiness of action is not due to the battery. It has been a common error with some platers to add cyanide from time to time when the deposit has taken place slowly; whereas, in most instances, a diminution in the power of the current has been the cause of inaction.

If my professional brother, Dr. David Aiken, of South Carolina, will take the trouble to call at the Army Medical Museum, in Washington, D. C., he will there see crowns, bridges, and, I think, a filling of the noble metals made by electro-deposition by the writer. I again make the statement that, if this beautiful art is understood, crowns, bridges, plates, regulating appliances and fillings can be made seamless, connected, perfectly fitting, without grinding or filling the natural teeth—hence painless.

**Gold Filling
Made by
Electro-Deposition.**

Probably the most mysterious operation to those who are not acquainted with electro-metallurgy would be the making of a filling. I will briefly describe a practical case, and if any one doubts the truth of the statement, I am ready at any time to show the fillings in a living patient's mouth.

About four months ago, a young woman called at my office with her two superior central incisors badly decayed on both sides, and I was

asked to fill them with gold, and I was especially requested that the operation should be painless. She had previously lost the laterals, and the space between the centrals was about a line. The cavities were very sensitive to heat and cold, and I assured her that I could fill them and the operation would be painless.

The first thing I did, was to fill the four cavities with soft beeswax to give them their natural contour; then I took a good plaster impression, and using moldine (potter's clay and glycerine) I packed it in the impression nicely to prevent the fusible metal from running away; then poured in fusible metal, and before it set, stuck in a good sized copper wire; removed, cleansed and over all parts of the metal teeth, where I did not want the metal, I coated with stopping-off varnish; then placed it in gold plating solution and allowed it to remain until the plate was about 28 or 29 g.; then removed it from the bath, cut out the face of the crowns until nothing remained except a little ribbon at the top and bottom. Of course the plate was allowed to cover all the cavities, polishing up beautifully.

The patient called. I excavated the cavities, cleansed them, then cemented those open-face fillings on. The patient was then, and is now, well pleased. No shocks. Comfortable.

Some may think that this was a long and tedious operation. It was not. I did not mind it half as much as if I had filled them by the old method.

Caries of the Inferior Maxillary Bone Caused by an Abscessed Tooth.

By Dr. W. R. HUGHES, Alameda, Cal.

On May 29, 1898, Mr. B. called me to his residence to extract an "ulcerated" tooth for his little girl, five years of age.

After making an examination it was discovered that caries had advanced to such an extent in the left deciduous second molar that it had resulted in an abscess. The following conditions were met with upon examination: When the little patient was asked to open her mouth, she did so very reluctantly; and when a slight pressure was brought upon the muscles of the cheek, a great quantity of pus was forced out around the offending tooth, which was exceedingly loose and extremely sensitive to the touch; the pulse was rapid; the child apparently was suffering from a low continuous fever; she was so debilitated that she could neither stand nor sit up without support; there had been a complete loss of appetite for several days.

The case was immediately diagnosed as an incurable abscess, due to death of the pulp of the tooth, caused by encroachment of caries upon the vital organ of the tooth. The treatment was immediate extraction. This was done without any difficulty. The father, seated in an ordinary chair, held the patient in his arms, placing one hand over the eyes, that she might not be disturbed at the sight of the forceps. She was wrapped in a blanket to prevent exposure to the cold air.

When examining the extracted tooth, it was noticed that nearly all of the dental ligament had been destroyed by pus, and the roots were becoming absorbed. This proved conclusively that the abscess had been in progress for a considerable time.

After extracting the tooth, I syringed out the alveolus with three per cent. hydrogen peroxide, and
Treatment
After Extraction. followed this with listerine. The parents were instructed to continue the same treatment for six days, three times a day. Sulphate of quinine was prescribed to allay the fever, and sulphate of magnesia to cleanse the alimentary tract and to promote absorption.

When I called on the following morning I noticed no complications other than those ordinary symptoms which accompany alveolar abscess, nor could I apprehend any complications resulting from the abscessed tooth, but to my great satisfaction the patient had enjoyed a good night's rest and appeared much improved in strength, and for the first time in several days had taken nourishment. I advised the parents to give the child considerable out of door exercise each day, such as short walks in the morning sun, and to be very cautious about her eating for two weeks. As my services were no longer needed I departed, regretting the necessity of extracting a deciduous tooth so prematurely, but at the same time knowing that I had done my duty.

On June 25 the mother presented the child for examination, stating that she was suffering from pain located in the inferior maxillary bone below the first deciduous molar, and that there was a discharge of pus from the alveolus of the second molar.

The part was thoroughly examined, and the following result was obtained: On the lingual surface the process was exposed from the anterior portion of the first permanent molar, which was making its appearance forward to the anterior root of the first deciduous molar; the same condition being present on the buccal surface, except that it could not be seen so easily. On the lingual surface the tissues had sloughed away over the entire region described, leaving the process exposed. The principal place where pus was discharged was from the alveolus of the tooth first extracted.

The patient seemed in excellent health, with the exception of being a little weak. She had a voracious appetite, and the systemic conditions had returned to normal. There was one place on the side of the jaw below the first deciduous molar where she experienced some pain.



Fig. 1.

With an explorer it was easy to distinguish that a sequestrum had formed. There was but one method of treatment indicated—removal of the dead and diseased bone. To facilitate the removal of the buccal sequestrum, and to bring about an antiseptic condition “Sinton moist iodoform gauze” of five per cent. strength was packed between the bone and gum tissue.

During the several visits the parts were washed with hydrogen peroxide three per cent solution, followed by a warm saturated solution of chlorate of potassium. After a number of successful visits, and by packing in a larger piece of gauze each time, the fistulous opening was sufficiently enlarged to permit of good access and examination.

On the following morning I held a consultation with the family physician. It was deemed advisable to delay operation until July 5, that the patient might gain in strength. The physician had been treating the patient for a slow continued fever, and had advised the use of Gardner's "lacto-phosphate of lime," which was prescribed to hasten the reconstruction of lost bone tissue.

**Operation
for Necrosis.**

On the morning agreed upon, the physician administered chloroform, and with a root forcep the necrosed bone was removed, as exhibited in Fig. 1. Fig. 2 shows the face returned to normal condition.



Fig. 3.

Fig. 3 shows the buccal and lingual sequestrums. The gum about the second bicuspid became diseased from the great quantity of pus surrounding it, thus depriving it of life. It came out shortly after the operation.

Some days later it was noticed that the bone tissue surrounding the first deciduous molar was diseased, and that a discharge of pus was present. To arrest the further progress of necrosis, and to promote the growth of new tissue, this tooth and surrounding bone were extracted.

The treatment following the operation was simple but effective. The use of lacto-phosphate of lime was continued. Each day for two weeks the parts were washed with the following solution:

Sat. Sol. Kali chlor. $\frac{3}{4}$ viij.
Tr. Myrrh. . . . 3 j.

With this treatment the part improved rapidly, except a small place in front of the permanent molar. When parts failed to heal in the proper manner, I sought the aid of Roentgen's ray. On account of the shape of the maxillary bone it was impossible to get a perfect image of the diseased bone, because the right side cast a shadow on the left. Failing to locate the cause of the irritation by this method, I packed the pus cavity

with iodoform gauze. After the third day, under this treatment, a small piece of honeycombed bone was dislodged and washed out with the water syringe. This seemed to be the cause of the irritation.

The prime cause of the whole trouble was the neglect of the parents to have proper care taken of the child's teeth. From the many cases of carious and neglected teeth that constantly confront the operator, it is evident that the profession have yet much to accomplish in educating parents and children in the proper care of the teeth. It is not sufficient for us to rec-



.Fig. 2.

ognize the proper care that the teeth demand, and check the encroachment of caries by means of fillings, but we should look beyond the teeth in many cases and inquire into the habits of the patient in our charge.

**The Dentist
as a Diagnostician.**

The dentist should be capable of recognizing if decay advances for lack of lime salts in the bone structure of the body; the operator should make himself acquainted with the oral secretions; he should know when caries advances with exceeding rapidity, and he is unable to

check the ravages of decay by the mechanical means of fillings, whether it is due to an acid condition of the oral secretions, or some abnormal condition of the general system; he should recognize this trouble and prescribe an antacid tooth wash, or lime salts or whatsoever the case demands; or if he is unable to diagnose the needs of a particular patient, it should be his duty to advise the consultation of a physician.

As a general rule, the dental practitioner gives too little attention to the physical needs of the patient. Either from lack of ability or neglectful oversight, he fails to realize that the systemic conditions of the patient must be normal before the best results can be obtained.

The same holds in case of the physician. It should be his duty in diagnosing a case to notice the condition of the teeth, as he cannot hope for the best results unless the dental organs are in proper condition.

The case described in this paper illustrates the truth of the statement. Had the tooth been filled, it would not have resulted in an abscess; had the physician recognized the abscess, necrosis could have been prevented.

Donations to the Army Medical Museum.

(Continued from page 735.)

No. 58. Dr. F. G. Lieberman, Atlanta, Ga., donates a part of the root of a tooth having the following extraordinary history: "The specimen was given to me by Dr. J. N. Crawford, of this city. Dr. Crawford is a specialist in eye, nose and throat work. This root of a left lateral incisor has a history as follows: About fourteen years ago the patient fell and broke off the crown of the tooth. Thinking he had lost the entire tooth, he paid no attention to it, until some ten years after, when he was troubled with what appeared to be a tumor springing from the floor of the left side of the nose. He was treated ineffectually and without relief. Finally he consulted Dr. Crawford and submitted to an operation. The growth was opened and the root was removed, having consumed fourteen years in the migration from the mouth to the nose."

Dr. C. S. Stockton, Newark, N. J., makes the following donations:

No. 59. Central incisor having caries of the root. The crown was perfect and pulp was alive. The patient suffered severely and the tooth was extracted.

No. 60.

An unerupted cuspid, having remarkable curved root. Removed to cure neuralgia. (Fig. 37.)

No. 61.

A lower bicuspid, entirely free from caries, but badly coated with calculary deposits. This was one of a full set of teeth similarly affected, all the teeth being sound, yet the patient was not aware of the presence of disease in the mouth until the teeth became sore.

**Fig. 37.****Fig. 39.****Fig. 38.**

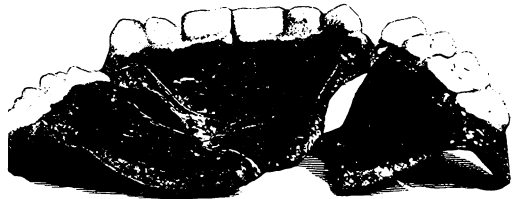
Dr. A. W. Beach, Sheldon, Iowa, donates the following:

No. 62.

A supernumerary extracted from the position once occupied by the left upper central; the original permanent tooth was knocked out by an accident during childhood. This is the second supernumerary tooth removed from this location, and the third is at present coming into position. (Fig. 38.)

No. 63.

Pulp calculus with pulp attached, removed from a first bicuspid. Patient aged twenty.

**Fig. 40.****Fig. 41.****No. 64.**

A small supernumerary removed from the position of the third molar.

No. 65.

Dr. W. S. Brigham, Springvale, Me., donates a third molar extracted from the lower jaw of a man.

The tooth has three distinct roots, and in a cavity at one side, which reaches the pulp chamber, the openings of three canals are seen. (Fig. 39.)

No. 66. Dr. W. Andre Campbell, Brooklyn, N. Y., donates a lower set made from ivory. The molars are crudely carved in the ivory, while the anterior teeth were natural teeth inserted into sockets in the ivory plate. There is evidence that the plate was held in place with springs. Dr. Campbell reports that the piece was made in Toronto, Can., about one hundred years ago. (Fig. 40.)

No. 67. Two molars having extraordinarily curved roots. Dr. Charles H. Fallon, Lambertville, N. J., donates the following:

No. 68. Three pieces of plate worn by a woman for more than two years in its present dilapidated condition. She would remove the set piece by piece and put it

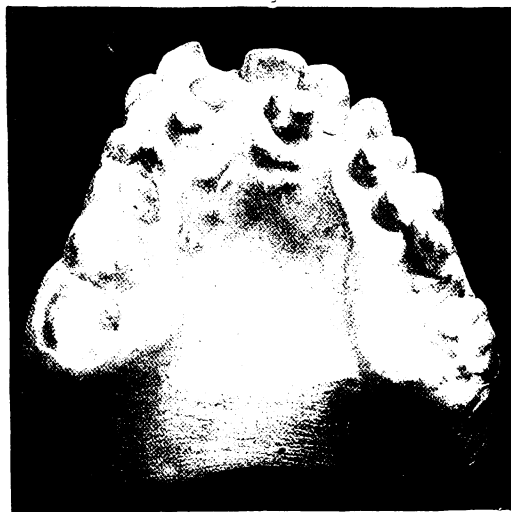


Fig. 42.

back in the same way. She managed to use these teeth in conversation and slept with them in her mouth, but could not use them for mastication. (Fig. 41.)

No. 69. Model from the mouth of a young lady, seventeen, containing three supernumerary teeth *in situ*, while the cusp of a fourth may be seen not yet fully erupted, back of the cuspid. (Fig. 42.)

No. 70. Part of the tuberosity of the superior maxilla, containing the molars of that side; result of an accident in extraction by an old member of the profession.

Pair of wisdom teeth with very long roots, ex-

- No. 71. tracted from a woman aged forty-three, weighing two hundred and fifty-three pounds.
- No. 72. A three-rooted bicuspid.

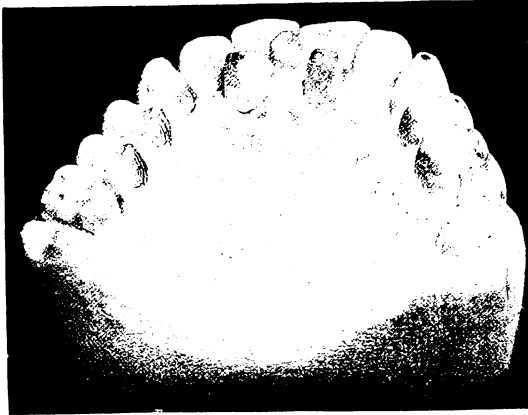


Fig. 43.

- No. 73. Bicuspid, perfectly sound crown, with caries of the root.
- No. 74. Lower bicuspid, with tip of root at right angles.
- No. 75. Lower bicuspid, having very long, badly curved root.
- No. 76. Supernumerary tooth with curved root.
Dr. J. F. W. Clasing, Brooklyn, N. Y., donates



Fig. 44.

- No. 77. a model from the mouth of a man twenty-three years of age. The examination showed five lateral incisors, three being supernumerary; the teeth of the lower jaw being perfect in number and quality. Advised the removal of the extra teeth.
- No. 78. Dr. E. S. Fuller, Piqua, Ohio, donates a model, showing fusion of the second and third lower molars. (Fig. 44.)

No. 79.

Models and beautifully gold-plated appliances described and illustrated on pages 17 and 18.

No. 80.

Dr. Gustavus North, Cedar Rapids, Iowa, donates a model taken from the mouth of a young lady of twenty-four. The right superior lateral is twice the width of the left lateral, and about one-fourth wider than the central incisor. The tooth is well developed. On the labial surface the tooth resembles a central incisor, while on the lingual surface the appearance is as though two laterals were fused together. (Fig. 45.)

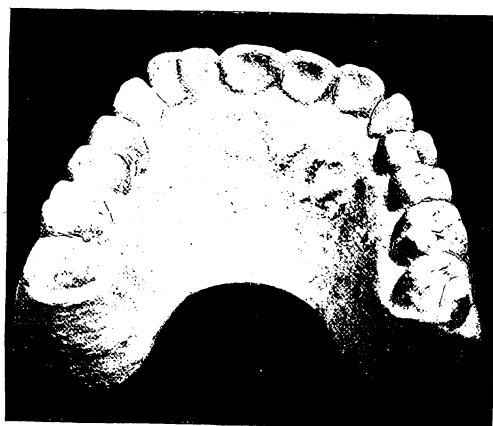


Fig. 45.

No. 81.

Dr. L. B. Wilson, Cumberland, Md., donates the model of an electro-deposit bridge, figured on page 735.

No. 82.

Partial electro-deposit bridge in practical use three years.

No. 83.

Abutments for bridge without grinding or filing natural teeth—painless.

No. 84.

Seamless removable abutments and saddle without grinding or filing the natural teeth.

No. 85.

Compound open-faced fillings; to be cemented on.

No. 86.

Seamless duplicate of natural tooth; electro-deposit.

No. 87.

Three electro-deposit crowns.

No. 88.

Electro-deposit copper and aluminum bottle; fusible metal not melted out.

Treatment of Semi-Dead Teeth.

By N. H. MYERS, D.D.S., Plymouth, Pa.

When we speak of semi-dead teeth we mean teeth that have dead pulps and pulp radicles which are or may be in a putrescent or mummified condition. These teeth as far as the exterior is concerned have vital tissues, or, at least, the vitality of the peridental membrane must be sufficient to replenish the cementum with proper and sufficient nourishment. If this membrane becomes diseased to the extent that it loses its power to replenish the cementum, then the tooth will have lost both of its sources of nutrient supply and must succumb to the inevitable—death, and be subject to exfoliation.

These semi-dead teeth come to us in a variety of conditions, such as blind abscess, abscesses with fistulous openings, abscesses that involve only the apical space, putrescent pulps, etc. These conditions must be met, and treated, according to their respective pathological characteristics, giving more thought to the thoroughness of the operation than to the number of successive sittings. Yet we have a condition known as blind abscess where if we attempt to hurry the operation without due regard to certain physiological laws we will invariably meet with failure.

The tooth with the open abscess, or the recently devitalized tooth may be filled at once, and patient dismissed, and success will be as certain as though many days had been spent in the treatment of the same. Some prolong the operation for selfish motives, while others feel that it is necessary to do so, but I believe that the majority recommend immediate filling.

The most necessary part of the treatment of teeth is the complete removal of the tooth contents. If this be thoroughly done and the root put in an antiseptic condition, success will, in most cases, crown your labor, regardless of the kind of filling material used in the root canals.

A great number of medicines have been recommended to the dental profession, and each as possessing peculiar virtues useful in combating the certain pathological conditions for which they were intended; and yet the great majority of us are from necessity forced to depend largely upon carbolic acid, creosote and essential oils as used by our fathers half a century ago.

Medicaments for Abscessed Teeth.

Carbolic acid may or may not be a coagulant of albumen, yet when used in the root canals after the contents have been removed, it in some way protects the dentinal tubuli from infiltrations. Whether this is due to its escharotic effects upon the contents of the dental tubuli, or whether it coagulates the albumen in tubuli, is a question for scientific investigation.

Where there is a fistulous opening I force about a fifty per cent. solution of carbolic acid through the opening followed by an alkali. (As an alkali, get good results from formalid, manufactured by Henry K. Wampole & Co., Philadelphia.)

In blind abscess I drill a vent hole on a line with the root canal, so that I can utilize it in future treatment. After the opening has been made I wash out the tooth with Oakland's hydrogen dioxide, followed with tepid water; then dry and insert loosely taper twist cotton saturated with carbolic acid, then dismiss patient for a period of four or five days. At second sitting I enlarge vent hole, remove as much of the septic matter as possible by the use of drills, reamers and warm water. I then flood the canals with hydrogen dioxide allowing it to remain in canal until bubbles cease. Then dry canal by use of canal dryers and flood with absolute alcohol. The alcohol having a strong affinity for water will absorb it very rapidly from dentine, and this in connection with hot air dryers leaves the dentine in a very dry condition. Next use taper twist of absorbent cotton saturated with oil of cassia if it be a posterior tooth, and oil of cloves if it be an anterior tooth. Both will penetrate the dentine to a considerable depth and destroy all forms of bacteria. I make the distinction between anterior and posterior teeth for the reason that oil of cassia will discolor teeth regardless of the kind of filling material used.

Wax as a Root Filling.

Our last consideration of semi-dead teeth will be the filling of them. For some years after leaving college, I practiced the filling of roots very much as we were taught in that institution, which was by the use of taper twist of cotton wool saturated with campho-phenique. This method of root filling appeared to serve its purpose very well, yet not perfectly, as I have met with a few lamentable failures. Whether these failures were due to the method of filling, or defective manipulation of taper twist of cotton, I am unable to say, yet I did my best.

After learning of beeswax as a material for root filling, I began experimenting with it on teeth out of the mouth and found that I could hermetically seal the apical foramen. This being the object to which my efforts were directed I at once adopted the method, and for nearly a year have not had a single failure.

This method is simple and can be practiced by the unskilful quite as

well as by the skilful. It consists in forming beeswax into small cones about the size of our gutta-percha nerve canal points. If you have properly prepared your root canals these cones can be placed in close proximity to apical foramen. I then heat a smooth nerve broach and place it as far up into the canal as possible, thus melting the wax and through capillary attraction drawing it up to and closing foramen. While wax is still soft, place pledget of cotton in canal and press to place with a blunt instrument. If this is properly done the root canal will be filled in all its parts. In the mouth of canal place temporary stopping and then proceed in the usual way to fill cavity with cement.

Educate the Public.

By DR. D. T. HILL, Syracuse, Neb.

During the past decade, we have, with each issue of nearly every dental journal, heard the cry go up for a higher education for dental matriculates. State laws have been enacted with the idea of throwing every possible safeguard around the public, to prevent them from being victimized by incompetent or dishonest practitioners. Has the work been entirely satisfactory? The answer must be, no! The higher requirements, to the seven months' sessions in place of four, to the three years' course in place of two, to State laws compelling a supplementary examination, we say "Amen;" but does this guard the public, and inspire their confidence and respect, as it is intended it should?

Is it not a fact that an otherwise intelligent public, educated under our free school system, are most astoundingly ignorant upon all dental matters? How large a percentage of the dear public know how many teeth the child should erupt, and how many can tell us how many teeth are found in the adult? Can we expect the public to be entirely protected from the wiles of the dental charlatan until they are sufficiently educated to intelligently discriminate between intelligent and skilful effort, and the bungling, gaudy advertising work of the professional snob, who is practicing a profession for revenue only?

The universal law of supply and demand must be observed in placing our profession before the world in its true light; the people must be educated up to a point of discrimination; at which point a demand will be made for the truly professional practitioner possessing all the attributes, advanced, general and special education can give; the quack will cease

to exist, because a discriminating public will use his gaudy advertisements for waste paper and deride his name on the fence board. How can this be obtained?

We suggest that a "Kirk," "Black," "Ottolengui," "Guilford," or some other gentleman qualified for the work give us a text-book elementary in character, but covering the ground sufficiently to give the student in our public schools a general idea of the anatomy of their dental organs; the diseases to which they are liable and their treatment; a chapter on the hygienic care of the teeth, and such other information as may be thought best to instill into the minds of the young.

With a text-book teaching a general knowledge of the teeth, their diseases and hygienic preventive treatment, the time would not be far distant when a discriminating public would demand the services of a profession they had learned to respect, primarily in their childhood at the public schools.





Unification of State Dental Legislation.

By EDWARD C. KIRK, D.D.S., Philadelphia, Pa.

Read before the Second District Dental Society in Brooklyn, January, 1899.

Dental legislation has its origin in the general need of society to limit or restrict the exercise of those activities of its members which operate unfavorably to the public welfare. The motive which is fundamental to dental legislation is that which in principle is fundamental to all legislation, viz., the betterment of social conditions. Laws are in their degree restrictive of individual liberties, and are therefore, as frequently viewed from the standpoint of the individual, productive of hardships.

Society has, however, determined that its existence as such requires the sacrifice of certain natural liberties of the individual, and by its legal enactments specifies what these restrictions shall be; in so doing it expresses the duty of the individual to the community.

As compensation for the sacrifice of individual liberty thus demanded, the community renders its return in the protection and improved conditions of living which it confers upon its members.

It is evident, in the view here presented, that in its final analysis dental legislation is not class legislation in any sense whatever, unless we are prepared to contend that all legislation is class legislation.

When we examine the result of dental legislative effort in this country for the past half century we are at once struck with its most prominent characteristic, viz., its heterogeneous character; and when we consider that the objective point at which the effort has been aimed is the same in each case, the diversity of method invoked for the accomplishment of an avowedly common purpose must at once stamp the greater proportion of it as defective. This diversity is not due simply to a difference in detail but includes equally diverse motives.

Object and Scope of Dental Legislation. Much of our dental legislation owes its existence to the effort of those who make the protection of the dental practitioner against the competition of his unqualified neighbor their primary and leading motive; the result is an attempt at class legislation which if not too glaring may easily secure legislative approval in the form of a speciously worded act capable of unlimited injustice in its practical enforcement.

Such laws are fundamentally defective and are incapable of surviving the test of judicial adjudication when that test is fairly and finally applied to them in the courts.

The tendency to demand legislation for the protection of the dentist is not at all an unnatural one nor can it always be regarded as essentially selfish in character. Proper dental laws are a protection and a benefit to the dental practitioner, they fix and maintain the standards of qualification required of the dentist and protect him from the competition of the incompetent and unqualified. But they accomplish this as a secondary and incidental result of their action. The dentist derives his benefits from dental legislation primarily as a member of the community, as an individual of the commonwealth; he shares in his degree the advantage which accrues to the whole body politic from a good dental law. Incidentally he is freed by it from the detriment of incompetent competitors and he secures the added respect and improved social status which he derives from being identified professionally with a body of colleagues who enjoy at least the legal stamp of reputability. But even these incidental advantages to the dentist are not essentially different from those enjoyed by the laity of a community having a well conceived and properly administered dental law.

Where the desire for these incidental advantages has been the dominating motive in procuring dental legislation it has operated detrimentally not only in producing dental laws which are more or less defective because of the flavor of class legislation which they contain, but, in a greater degree, because of the failure to include certain important provisions which tend to conserve the principles of equity, whereby they work not only individual hardship but injustice.

Many instances may be found in a survey of our dental laws where sins of omission of the character alluded to are productive of far greater injustice than any of the errors of equity specifically embodied in the acts themselves. Hardship to the individual is, in a certain restricted sense, compatible with an equitable law—injustice never.

But it may be asked why do legislatures enact laws defective in the particulars noted? A critical study of the subject leads me to believe that

in general terms legislatures will enact any sort of a law that is demanded of them, provided the demand is a sufficiently forcible one. If anyone should question the correctness of this conclusion I beg to refer him to the laws themselves.

The desire and willingness of the average legislator to meet the wishes of his constituents is amply attested by the diversity of result attained in our efforts to secure dental legislation. Complaint is frequently made by those promoting the enactment of dental laws that their bill was a good one until it reached the legislature and was mutilated in its passage by that body. Statements of that character are generally matters of opinion rather than of fact. The main obstacle in the way of effective and equitable legislation has been, in the opinion of the writer, the lack of an intelligent appreciation of the purpose and objects of the law asked for on the part of its promoters rather than any real obstacles to the enactment of a righteous dental law by the State legislative bodies. If in each case we had clearly understood what we needed rather than what we wanted, had appreciated our rights, and the principles of equity to be observed in obtaining them, the difficulties and obstacles encountered in legislative approval of our efforts would have been largely diminished. The dental legislative stream cannot rise higher than its source, and its source is the dental profession. Legislatures are creatures of the people empowered to express the crystallized will of the people as law, and in this particular connection *vox populi* is *vox dentarium*.

It is doubtless a natural result that enactments secured during the formative stage of our thought concerning dental legislation should be imperfect. The conditions which required legal direction and limitation were new and during the period following the first dental enactments dentistry has had its most active development, conditions have almost entirely changed, qualifications are demanded of the practitioner which were unthought of in the earlier stages of dental legislative effort; not only has our educational system expanded but educational institutions have multiplied to a degree that taken as a whole makes the problem one of much complexity as related to its efficient legislative control.

The development of dental legislation does not differ in its method of growth from that of legislation in general. As stated at the beginning of this paper it was the expression of a need created by a new factor in our social fabric.

When dentists were few in number the relations of *meum* and *tuum* among them needed no formal definition and questions of individual right were under existing circumstances easily adjusted by direct means. When, in response to an increasing demand, practitioners of dentistry were multiplied in rapidly increasing number and ratio, the problem of their mutual

rights and their rights individually and collectively as related to the community at large, came prominently and pertinently forward for settlement and formal definition by legislative enactment.

Dental Laws The tide of dental legislative effort originating
Demanded with the law of Alabama in 1841 has continued until
Universally. all of the United States and territories with the ex-
 ception of Idaho and Indian Territory have dental
 laws which may be taken as concrete expressions of

the will of the people, defining the limitations and restrictions which equity demands shall be placed upon the professional qualifications and activities of the dentist.

I have characterized these enactments as concrete expressions of the will of the people without any intention, however, to ignore or overlook the fact that in all cases the initiative in their creation has arisen from the dental profession. That fact, however, does not invalidate the present characterization of the result.

We have then two important conditions before us for consideration, viz., first, that practically the whole group of States and Territories comprising our Federal Union have formally recorded their opinions as to dental legal control, and second, that scarcely any two of these opinions are in harmony as to their main features. In short, all want legal control, but each has demanded a different kind or degree or mode of enforcing it. We are in harmony as to the need for dental law, but at variance as to details.

With respect to the first consideration the completeness of the result attained is proof that the dental profession is a unit on the question of the need for legal control and guidance; the objections to legal restriction as a conservative factor in our professional progress have become inoperative or have disappeared. We have completed an epoch in our history as a profession and our concern for the future in this connection is not, shall we have law, but what kind of law shall we have.

The value of legislation as a conservative factor in our professional progress is not to be judged by the results of its unwise and oftentimes ignorant practical application. It is the lack of unanimity as to certain fundamental factors, the need for a basis of essentials which by common consent would operate for the general good that are responsible in nearly all cases for the dissatisfaction, antagonisms, and irritation which have arisen with respect to dental laws.

The truth of this proposition scarcely needs supporting testimony as all who are familiar with the subject will recognize its general correctness.

**Differences
Requiring
Unification.**

Time will permit the consideration of but two main sources of inharmony, viz., the diverse standards of qualification required of the dentist, and the interstate recognition of dental licensees. At the outset it may be said of these two factors without fear of contravention, that the latter is directly a corollary of the former. If all the States were united upon a uniform basis of educational requirement, the interstate recognition of licensees would be easily attainable. In fact the educational standard is the vital pivotal factor of all dental legislation and the one to which all other details are subsidiary.

I frankly admit that I approach the consideration of this feature of the subject with much hesitation. Even those who are recognized authorities in educational matters have not yet been able to settle the problems which are fundamental to the educational process in general, and until clearer and more definite views are available as to the main principles of the problem the secondary and special features must necessarily be more or less imperfectly formulated.

**Qualification
as Viewed by
State and College.**

With respect to dental qualifications our ideas as to standards are exceedingly diverse, if we may judge from the standards required by our dental laws. It is doubtless true that the diversity of our laws on this point is largely a reflex of the diversity of opinion among members of the dental profession, but there is a factor which I am inclined to believe is not without effect in explanation of this diversity and which is not generally recognized, viz., the difference in required standard of qualification when viewed from the point of view of the State and from the point of view of the college respectively.

The point of view of the State, with respect to the qualification of dental practitioners has been determined with some degree of accuracy as a result of actions at law for recovery in malpractice cases in which the competency of the operator has been called in question. In general in these cases it has been held by the courts that the dentist is competent if he possesses a "reasonable and ordinary degree of skill and learning," and McClelland in his *Civil Malpractice* lays down the general rule that "the least amount of skill with which a fair proportion of the practitioners of a given locality are endowed, is the criterion by which to judge of a professional man's ability or skill." In short, the State places the standard of qualification at practically the minimum point and with some fair degree of equity with the intent of including all members of the professional body within the protective influence of the statute governing their activities which could not be done were the standard of required skill made high enough to exclude a considerable number. The State in order to be just

has been compelled to level downward rather than upward in the matter of qualification.

The point of view of the college is or should be radically different. It is the business, and let us be charitable enough to admit, that it is the ambition of the college to produce the highest grade of educational result of which it is capable. Its standards should therefore be higher than that demanded by the State, and the duty of making them so is a moral obligation for which the colleges should be held responsible.

While by force of circumstances involving the equities of the case the State has been compelled to adopt a minimum standard with respect to the qualifications of its practitioners of dentistry, analogous conditions do not obtain with reference to the unification of the standards of the several States. On the contrary the conditions are almost exactly opposite. If one State has found it practicable to maintain a standard which though representing a minimum of qualification for its own practitioners is nevertheless a maximum standard as related to that required in the other States, then there is no just reason why those States having the lower standard should not be brought up to the level of that having the maximum standard; in fact, equity demands that they should.

It is, I take it, a work of supererogation to defend the proposition that uniformity of standard is desirable or to attempt to show that a uniform standard among the States is a *sine qua non* in securing interstate recognition of dental licensees, both of which I presume are self-evident truths. The difficulties and perplexities growing out of the diversity of our dental laws are not peculiar to dental enactments, but are common to nearly the whole gamut of statutory enactments throughout the Union and are a direct result of the autonomy of the States in the exercise of their municipal powers as conferred upon them by the federal constitution.

<p>The Solution of the Inter-State Problem.</p>	<p>The complexities which have arisen by virtue of the principle of State sovereignty, have been sought to be adjusted by two methods. First, by constitutional amendment bearing upon certain relations diversely controlled by State laws, and secondly, by securing</p>
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uniformity of legislation on specified subjects throughout the States. The first method has been tried and has been declared by the highest legal authorities of this country to be impossible of accomplishment. It is defective in principle because antagonistic to the spirit of the federal constitution which is adverse to the centralizing of power in any degree that will interfere with the right of the people to govern themselves.

The second method, that of securing uniformity of State legislation, is, in view of the impossibility of the first, the only practical and equitable means available. The American Bar Association, a national body with

subordinate State branches, has been organized among other things for the especial object of securing uniformity of State laws, and they are working towards that end by the influence they can bring to bear on State legislatures after having systematically codified existing statutes, and evolved therefrom forms of laws suitable for general enactment. Their method is the result of a crystallized wisdom of the best legal talent of this country, and as our problem of unification is the same as theirs, our method to be successful must also be the same.

Are we ready to proceed in this matter? Can our legislative needs be defined in any particulars as to which we can all agree as being essential and applicable with equity to the whole dental profession of this country? I think we are justified in taking the affirmative view of the question at least as related to the main fundamental principles of dental legislation.

The first and most important principle which we should admit and agree upon is that the right of the State to determine the qualifications of its professional men is a constitutional right and has never been successfully combated, which means that the State has the right to establish its standards of qualification and to ascertain by any reasonable means whether they have been attained before granting the license to practice. In many cases this constitutional right has been relegated by charter to dental educational institutions.

Under existing conditions I am convinced that the best interests of dentistry and especially of dental education demand that this relegation of licensing power to the colleges shall be restored to the State in all cases and its execution be vested in properly constituted State boards of dental examiners. The restoration of the licensing power to the States under a uniform dental law prescribing the maximum professional qualification would inevitably result in making financial competition among our educational institutions secondary to a competition toward excellence of educational product.

But in order that opposition to the loss of licensing power by the colleges shall be overcome it is essential that both the college authorities as well as their graduates shall have the assurance that the applicant for license will receive equitable and intelligent treatment by the examining boards. Satisfactory assurance on these points is only practically attainable by requiring that the licensing examination in all its details and results be made a matter of record open to inspection by all the parties in interest with adequate provision for appeal in case of error, incompetence, or injustice in its conduct. Under these conditions the colleges have manifested their willingness to surrender their chartered licensing power as witness the fact that while the present dental statute of Pennsylvania

involving this principle was pending passage, the authorities of the five dental colleges of that State made a personal appeal to the Legislature requesting favorable action upon it.

The reason for opposition on the part of the colleges to surrender to the State of their chartered right to license their own graduates on any other basis is not far to seek. Where the law does not provide that the licensing examination shall be a matter of record and subject to appeal, the State by its dental law says in effect, "we discredit the college examination and impose greater confidence in the integrity and fairness of the State examining board," a proposition which is untenable because inequitable. But it may be asked why should the State licensing examination be a matter of record and subject to appeal any more than examination for the dental degree? In answer it may be said that the licensing examination is a test of qualification with reference to the standard prescribed by the State in the interests of the public weal, and the public are entitled as well as the parties in interest to know that the test has been correctly applied. Further, it is a needed and wholesome safeguard against incompetency of the examiner under existing modes of appointment.

Another important feature upon which we should endeavor to secure uniformity in our legislation is the selection of State examiners in all cases by the dental profession, they being best fitted to judge of the qualifications for that office. Dental examiners should be nominated, if not directly elected, by the State dental societies or by accredited chartered local societies in the absence of State societies. The exclusion of political influence in the creation of examining boards should be as complete as possible for obvious reasons.

Provision for interstate recognition of licensees should be made only among those States having not only the maximum standard of qualification but which provide for an open record of the licensing examination in order that any board accepting a foreign license may have access to the results of the examination on the basis of which such license was granted, for purpose of verification.

Before interstate recognition of licensees is made general both maximum standard and open-record examinations must be made general.

Are these conditions impracticable? Perhaps the suggestion that they are possible may be regarded as Utopian. I trust it is not. To promote the unification of State dental laws is one of the avowed purposes and objects of our National Association of Dental Examiners, and that body has even formulated the draft of a law containing many admirable features which they at one time recommended for general adoption by the States.

Since that draft was published our knowledge of the subject of dental legislation has advanced and it would seem wise to embody the results of our increased wisdom in any new effort in that direction.

**National Association
of Dental Examiners
Approved.** I am in this connection glad of the opportunity to say that I am heartily in sympathy with the purposes and objects of the National Association of Dental Examiners to which I have alluded. It is my conviction that the Gordian Knot of our complex

educational system with its many imperfections, faults and positive errors can only be cut loose from its shackles of commercialism by means of wise and equitable legislation. If I have at times criticized even with some harshness the proceedings of the National Association of Dental Examiners, it has been on matters of method and not of object. It seems to me that the securing of uniform dental legislation is peculiarly within the proper functioning lines of that body, and in their legitimate efforts to that end they should have the active support of the whole profession.

I have endeavored in this lengthy and desultory communication to direct your attention to some of the main principles which it would seem should guide us in gaining a much desired end. I am conscious that much has been left unsaid that should be said to make a comprehensive presentation of the case. I trust, however, that the consideration of the subject has been suggestive and that it may help in directing our thought with respect to dental legislation so that future enactments may be more in harmony with the principle laid down by the greatest American of his time, that, government of the people by the people and for the people shall not perish from the earth.



Our Influence.

By DR. C. J. PETERS, Syracuse, N. Y.

Read before the Fifth District Dental Society, October 11, 1898.

Every action is the natural product of existing conditions. These conditions may be largely modified by ourselves, and to the manner in which we do it is due our influence in the community.

We, as professional men, are constantly and at all times exerting in some degree an influence upon those about us. In our discussion of dentistry we have the power to direct the thoughts of those who come to us for services toward the right ideas of the care of the mouth and teeth.

The men who scout the value of our societies, and tell of patients gained while we have been wasting our time and money, wire pulling for office and patting each other on the back, and who boast that they take the dental journals and read all the best thoughts of the profession in their offices or at their leisure, are really, absolutely and entirely under the influence of those societies.

They practice dentistry as far as they comprehend it, in the same way which their journals lead them, forgetting that practically all the ideas gleaned from our dental journals originate in our societies or emanate from our members. Do they not live on our substance, and like sheep follow the shepherd whom they constantly deride? As they give out no time, money or ideas for the benefit of others, they may be likened to a sponge—absorbing, but yielding nothing without squeezing.

Let the young man think of this a little before deciding that he cannot afford to belong to the dental society. If he cannot be a bright, shining light, he at least has the satisfaction of being in the vanguard and not of the stragglers in the rear.

Had it not been for our organizations, who would have digged and delved for the cause of dental caries till it was found, and who outside of them, tell me, is striving to find out the etiology of our greatest foe—pyorrhœa alveolaris?

**Influence
on Patients.**

But aside from our influence on each other and the profession at large, we have created and are constantly adding to that public sentiment which brings to us the children of those parents who ten or fifteen

years ago came to us for extracting or plate work, believing nothing else could be done for badly decayed or aching teeth, and now urging us to save all the teeth possible for their little ones.

Of all things, we should practice what we preach, and always remember that the people whom we meet socially, professionally or otherwise, are sure to notice the condition of our own teeth, and the least sign of neglect or carelessness lowers their estimation of us, while, on the other hand, the sight of perfectly kept mouths arouses a guilty feeling in the careless and brings forth the tooth powder and brush. It is not to be expected that the dentist who does not care for his own mouth and teeth will have much influence for good in that direction among his patients.

As great as has been the effect of efforts to save the natural teeth, there still remains a great work to be done. We have the two great classes into which dentists are divided, the operators and the plate workers, and every day draws a sharper line between the two—at least in our large cities. To the one go those who have learned the blessing of preservation, while to the other goes the unbeliever, the untaught and the negligent. We cannot contemplate this latter class without some alarm, feeling all the time the tremendous influences working in the wrong direction. For, while the plate worker is educated in the full science of dentistry before he is allowed to practice, still he seems powerless to attract to himself anything except extracting and the plates to follow. This, of itself, would not be so great an evil if its application could only be controlled. But, speaking generally, instead of this great class making better plates than ever before, they never made such poor ones as they do at this present time. The whole effort seems to center in how cheaply a set of teeth may be made that the ignorant patient will accept. How this influence is to be met, I do not see, for it is so widespread that the manufacturers of the materials are almost entirely under its ban, as seen by their greatly advertised, cheapened products. There is at the same time a great boast of improvement in excellence, but not the excellence that can command a higher price.

The artificial substitutes for the natural teeth have been a great blessing to humanity. No other organs of the natural body have ever been replaced so perfectly, easily and giving such satisfaction to the wearer, and the ingenuity of the profession, together with the skill of the manufacturer, has brought it within the means of the people generally.

Still it has not been an unmixed blessing. It has become a reproach to the profession to a certain extent that the competition for cheapness has progressed at the expense of skilful work, natural appearance, restoration of contour of the face and other essentials of the correct denture.

If we had never had it at all, and were unable to do more than work to save teeth, what an impetus operative dentistry would have taken, and what a different profession this would be? Such questions as to whether we are a branch of medicine or a distinct profession would never have arisen. The people then would never have lost teeth in ignorance of their value, or through thinking it easy to get others that would not ache.

We know that the requirements of the army in regard to the teeth are extremely low, yet it came under my personal observation that numbers of young men anxious to join the volunteer ranks for the late war with Spain were rejected because of defective dental apparatus alone, other requirements being readily reached. All of these young men had suffered the evils of extracting, the remaining teeth being in a deplorable condition, especially in regard to cleanliness. In a few cases it was possible to restore them sufficiently to pass the medical man, but in many, owing to senseless as well as needless extracting, it could not be done without resorting to plates, and plates were not acceptable. Fair to good front teeth were found; the mischief had been wrought in the molar and bicuspid regions.

In cleansing the teeth, thoroughness is the main consideration in order to set an ideal for the patient to strive to maintain. When other work is to be done, it should be the invariable rule to do the cleansing first—aside from relief of pain—and during the process its importance may be explained as well as an interest taken in assisting the patient to select suitable brush and powder for use at home. Should the least tendency towards pyorrhœa be observable, attention should be called to it in such a way as to leave an impression, and suitable advice given to cover the case. There can be no doubt as to the good influence exerted in this way rather than the hasty cleansing so often done on the final visit. The dentist, too, has a clean mouth to work in, and is able to save much pain in subsequent operations. This is particularly true in the application of the rubber dam, when ligating or clamps are necessary. The tartar occupies the place where the ligature or clamp should go, and if not removed necessitates its being forced beyond it, causing great pain which could have been avoided easily.

**Influence of
Proper Cleansing.**





Second District Dental Society.

January Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held at the "Argyle," No. 308 Fulton street, Brooklyn, on Monday evening, January 9, 1899, at 8 o'clock.

The members of the First District Dental Society of the State of New York, and the Central Dental Association of Northern New Jersey were the guests of the Society.

After the minutes of the previous meeting had been read and approved, Dr. Barker moved that all other business be postponed, and that the Society proceed at once to the reading of the paper. The motion being carried, the paper of the evening was read by Dr. E. C. Kirk, of Philadelphia, entitled "The Unification of State Dental Legislation."

Dr. Kirk said that the paper could not embrace the whole subject under discussion, but contained merely a few suggestive thoughts which he hopes will help to develop the interest of dentists in the question of unification of State legislation in respect to dentistry, and enable them to overcome some of the defects and obstacles which are met with because of the diversity of present legislation.

Discussion.

This is a matter to which I have paid considerable attention, and have had occasion to think about a great deal. My ideas have been described in the paper, although I have not arrived at any mature conclusion as to what is the best thing to do. What I had thought would be the outcome of reform in regard to the incorporation of laws, would be to have those States which stand highest in the scale agree together and form a nucleus. These States together could give a license without examination, and thus make a start and bring others in as fast as possible.

ITEMS OF INTEREST

One point impressed me very favorably, and that
Dr. H. R. Starr. is, that the essential feature should be the adjustment of the preliminary educational requirements, for all colleges throughout the States. I believe that a certificate granted by one State Board should be recognized by all other Boards throughout the United States.

It seems to me that the final dental law must be
Dr. Chas. Meeker. a matter of evolution. The first laws were crude and imperfect, and fault with them was found by the dental fraternity; as time went on, other laws that were better suited were instituted, and after a number of years, the National Association of Dental Examiners was formed, with the avowed purpose of bettering the laws in all States.

It is my experience that in the National Association this has been very hard and uphill work. In New Jersey we have no colleges, consequently we are independent, and we feel very glad of it. I know that we have had new laws every few years there; the dentists have worked hard for them, and each new law, I think, has been better than the previous ones. We have copied from Alabama, Massachusetts and various other States, and we think now that we have a good law—probably one of the best of all the States.

In reference to the matter of records, of which Dr. Kirk has spoken, I will say that since our Board has been formed, every examination is made on a printed sheet of questions; these must be answered with pen and ink, and each examination is filed for future reference. Every examination that has been held under the law of 1898 can be found in an instant, and can be a matter of court record, so we have no fear but that if any gentleman failed on a first or second examination, the court could see that he had had a fair examination, and that he had failed for lack of knowledge.

I feel very glad to have the opportunity of expressing my gratification at hearing Dr. Kirk's paper.
Dr. Carleton Brown. It is a most admirable work in every respect; the principles advanced are the ones on which the profession should work, and on which the National Association of Examiners and the Faculties Association should take a stand.

In 1894, a meeting of the Examining Boards of the Atlantic Coast States was called to meet at Asbury Park, and at that time the same line of thought was discussed. The National Association of Examiners was compelled to take up this matter to see whether laws could be enacted in all the States that would be of such similar character that proper interchange of licenses could be made and results achieved as suggested by Dr. Kirk.

The idea is, without question, correct; the working out of the idea is perhaps not a failure, but it is very slow coming. That was four years ago, and at the present time, three States have succeeded in getting laws where an interchange may be made. These States are New York, Pennsylvania and New Jersey, and I would state that it has already been arranged, and a date will soon be set, for a meeting of the Boards of those States, to reach an understanding and arrange a common standard, so that the interchange of licenses can be made.

I want to say a word about public records. Dr. O. C. Hill. Meeker made a statement that public records of the New Jersey examinations were kept. There is a great difference of opinion about public record. What does your law designate as public record?

Dr. Meeker. Our record is filed with the Secretary of the Board.

Dr. Hill. That is not a public record. A public record is a record filed with the Secretary of State, or some State officer, that can always be looked at and examined, and that everyone has a right to see. A record kept by a Board is not a public record.

Dr. Meeker. As I said before, our examinations are on printed sheets; spaces are left for the answers. These answers must be written in ink, and the paper of each man is placed on file. That is a public record. Any one can see them at any time.

Dr. Hill. That is simply a record for the Board of Examiners.

Dr. Meeker. No, sir; any man can examine the records. It is the custom to make a request to the Board, but the records can always be seen.

Dr. Hill. Has a man a right to see those records without a request from anybody or to anybody?

Dr. Meeker. Yes.

Dr. Brown. Dr. Hill, if you wish to see them, ask the Secretary, and he will produce the examinations.

Dr. Hill. But if he refuses, is there any way by which I can compel him? It is a new idea for me that it is necessary to get an order to see a public record. The public record of the State of New York is in the hands of the Board of Regents. Our Examining Board has nothing whatever to do with it.

Dr. E. S. Straw. It is so long since I first introduced a law in our State Society, and it has been changed so many times, that I have not kept a record of it, consequently I

do not know much about it; but I am very happy, in these last days, to hear this discussion going on, because I have felt for years and years that there should be something of the kind.

I suppose it is inevitable that in the development of the dental profession there should be inquiry and argument into the laws of the States, and it is equally inevitable that there shall be final regularity and uniformity. The plumbers of New York, Brooklyn, Philadelphia, Boston, Chicago, etc., use the same thread on their gas pipes—standard gauge; now it is inevitable that the States in our Union should use the same thread on their dental gas pipes.

The idea has occurred to me that it is merely a means towards an end, and if the end suggested by Prof. Kirk can be achieved, then we will have reached nearer the millennium of dental legislation than dental legislation has at any time before approached.

If there can be a unification of dental laws toward the point where an alumnus of any recognized dental college can practice in any State in the Union, then the advantage which will accrue to every college and to every alumnus is enormous. To maintain that a man is bound today to practice in the State in which he is licensed, and at the end of a series of years, if he desires to change his residence, he must go back to first principles and pass an Examining Board (which would be almost impossible for any graduate of ten years' standing) is not a broad position for us to take, and consequently, if it can be made legal that a man graduated from a recognized college may register his diploma and practice in any State in the Union, it would be merely an act of justice, which is due him.

All legislation is a series of compromises, and if in the early days of this unification of dental law, it is essential to climb down from the highest standard of excellence to the medium standard of excellence, and after a series of standards have it gradually advanced again to that higher standard of excellence, I think the good which will accrue can scarcely be appreciated.

It is not essential that in the early days of such an undertaking we establish such a standard as exists in a few of the States today; if the National Association would take up this matter and exact merely an average standard, we would all be benefited.

I have always been in favor of the unification of dental laws, and I think the dental degree should be given more prominence. I think "D. D. S." should be known all over the world as the dental degree.

I have been extremely gratified to hear Dr. Kirk's paper tonight, and to hear him argue in favor of the unification of the laws regulating dental license—so as to allow any one who is licensed to practice dentistry in one State, to practice it in any other State of the United States. I think it is a good beginning; we are not going to accomplish it tonight, but if we keep on with agitation in this direction, we will accomplish it in the course of time. I am in favor of State's rights, and yet I am an imperialist. I thoroughly believe in legislation that affects all the States of the Union alike. Let it emanate from Washington. Laws that affect the marriage decree, divorce, medicine or dentistry, ought to be controlled from Washington, and the law ought to be made there which shall govern these matters in each State alike.

In the present state of public opinion, I do not think that is possible, but it may come in time. The country is not ripe for it yet. Dr. Kirk presents the proposition to so legislate in the various States that the prominent features of the law of each State shall be alike. It is impossible at the present time to get the same law adopted by the Legislature of every State. The dentists may think alike in each State, but the legislators do not, and while the essayist has spoken very ably about the source from which legislation is derived, a great deal of power rests in the hands of the legislators, and they want to have a finger in the pie. In some States, however good a law may be presented to them, they think it is not just right until they have altered it a little bit. In the course of time, it might be possible to get a law in every State with the principal provisions similar, but perhaps a still nearer accomplishment would be to get a provision in the dental law in each State for an exchange of licenses. It would take some time to bring about the basis by which these licenses might be exchanged throughout the United States, for we have been told that all except two States have at present an enactment referring to dentistry.

I agree thoroughly with the essayist that two features are essential to the exchange of licenses between the various States. The first is the requirements as to preliminary education before matriculation in the dental colleges, and the second is that the records of every Examining Board shall be public. As Dr. Hill has brought out tonight, there may be a vast difference between what is known positively as public records, and what may be called public records.

All questions and all answers passed by the Examining Board of Pennsylvania and the Examining Board of New York, are of public record; they are all deposited with the Board of Regents at the Regents' office. They are subject to the perusal of any one under proper conditions in both States. I am not sure how it is in New Jersey, but I understand

that they are the records of the Board of Dental Examiners. They are subject to perusal by any one whom they choose to allow to see them, but they are not public records. I have been a member of a Board of Dental Examiners about twenty-two years, and the conditions surrounding the Board today and those of twenty-two years ago are entirely different. Twenty-two years ago the examinations were crude and exceedingly limited compared with what they are today. We have grown with the natural growth of education in this State. It would be a disgrace if we were just in the condition that we were twenty-two years ago. I do not approve of what has been said tonight, that we make the standard of excellence one which is the medium standard as it exists in the different States today. If we place a high standard, and admit the States that come up to that standard to an interchange of dental licenses, one State after another will want to join in that combination. I believe that under existing conditions, that is the true solution of the unification of the dental license, and the unification of the standard of excellence in dentistry.

So far as I can observe, the discussion of this paper has followed the trend of all others—commendation. I have too high an opinion of Dr. Kirk to believe that he would be entirely satisfied with that kind of discussion. I do not think he desires to go back to Philadelphia with the idea that there was nothing further to be said on the subject. As an effort in the right direction—the direction of having a uniform standard by which men shall be permitted to practice, I note all that has been offered, and admit that it has all been presented in a masterly manner; but I do not agree with him when he says that the Dental Examining Boards are an advantage. He did not use that language, but he admires the National Board of Examiners. I look upon the existence of Examining Boards as the greatest evil that ever befell the profession of dentistry. But I am compelled to admit that they are a necessary evil. Oh! the pity of it! It is woeful that we should be obliged to confess to Europe and to the rest of the world that we could not trust our colleges, and I think that the sooner we get back to a position where we can tell the whole world that we do trust our colleges, the better.

Every time any one has said tonight that he favors unification of the laws regulating State licenses, there has been applause. Now, if we are all in earnest, we can have it within one year, and we do not need to ask the legislatures to help us, either. It can be done by having the National Association of Dental Examiners reach after that aim for which they were organized; let them stop squabbling with the colleges, and try to reach unification; but a proposition of this nature has been before them for a year, and they have not even discussed it; a proposition which I

will make again tonight in the hope that it will be discussed. If they would consider it of importance to elevate the prestige of our diplomas, and to arrange it so that a diploma would be recognized all over the United States, within a year we might have interstate license.

The essayist has said that it is necessary that the State Examining Boards should keep a public record, or that their examinations should be "of record," which I believe is the legal phrase. He thinks, however, that it is not necessary that the examinations of the colleges should be of record, but I differ from him. I regret that there should be any State Boards of Examiners, and I think the recognition of the original wrong, that is, that incompetent men were receiving dental degrees, was followed by a still greater wrong when men were authorized in a State to examine men who had already been examined. It would have been better to examine the methods of the colleges, and insist that the diploma should mean what it declares, that the holder is capable.

It may be argued that with our somewhat cumbersome notions of State independence, a Board of Examiners could only do such work within the limits of its own domain. That is not literally true. Here is my proposition: Let us do away with State Examining Boards, and call them State Boards of License. Let them give a man a license to practice. Now what shall be the basis upon which a man shall demand such a license? Let him present to the Board a diploma from a properly chartered college, submitting with that diploma the original examination papers upon which that college granted him his diploma. The result would be justice to the student.

In all these discussions, we always consider the rights of the profession, of the colleges, of the examiners and of the public, but what of the student? The student, when he goes to a college and pays his money for a dental education, has a legal right to demand enough knowledge to practice dentistry, and when he gets that from his preceptors, he should not be compelled by a State Board to answer a question, the answer to which was never taught to him when he was in school. He should be allowed to say: "Gentlemen, I have a diploma, and they gave it to me upon these papers. If you think that these papers justify my receiving the diploma, you must give me my license; if you do not think so, you must quarrel with that college, and see that it gives out no more diplomas to men who cannot practice in your State."

I admit you cannot have a lot of legislators pass the same law. The politicians have too much to say. We have too much politics in this country, dental and otherwise. However, this unification can be accomplished immediately without politics. This is a proposition that has been twice given to the National Association of Dental Examiners.

The majority of the State laws direct that these Examining Boards shall examine the man for license, but I do not at the moment recall one that tells how he shall be examined. If the examination is arranged by the National Association of Examiners, and all of its members, State Boards, should examine in the designated manner—interstate license would be easily attained. The way that I would suggest would be: "Give me your diploma, gentleman, and your examination papers. We will license you if you have properly received your diploma; if your papers indicate sufficient knowledge of dentistry, and not too much ignorance of English; we want those papers stamped sheet by sheet with the stamp of the college, so that we may know that they are genuine." If all the men are examined and licensed in that way, when a man from Illinois comes to New York, the New York Board could safely license him at once, and *vice versa*.

I have been in this law business for thirty years.

Dr. Hill. We have gradually grown, and with all the laws, the whole aim has been to be just. Never has anything been done that could in any way injure a man who was at that time in practice. All bills that have gone before the Legislature have been just and equitable. That has been the principle upon which we have worked—a principle of love more than anything else. This State demands (or will within a year or two) graduation from a High School before a person can enter a college. A man is not fit for any profession today who does not have that foundation as a start, and the law is not severe.

In Chicago, at some of the places, they can get diplomas for from \$10 to \$25. Should we allow those men to practice in this State?

Undoubtedly Dr. Ottolengui's idea is a good one, but it is perfectly impossible of accomplishment; these Examining Boards are a necessity. About a year and a half ago I received a letter from Dr. Kirk, asking me if something could not be done between the States of Pennsylvania and New York, so that their diplomas or licenses issued by the State Boards could be interchanged. We corresponded some time. Last year, by adding a line and a half to our law, we made it so that we can exchange licenses with any State in the Union which demands a preliminary education equal to ours. Pennsylvania is going to have just as good a law as we have, and we hope that New Jersey will come in too; but New Jersey must make her records public.

I have been disappointed at the remarks of the last speaker. I think Pennsylvania, New York and New Jersey could act together. In New Jersey we require a High School graduation before they can be considered. We have a public record, the records held subject to the order of the Court by a regular officer of the State appointed by the Governor. They are

placed in the hands of the Secretary of the Dental Commission, and are subject to examination by anyone who goes to that office at any time. They might be placed in Trenton; but as all the papers are in the Commissioner's Office, I do not see how the point raised by New York could hold.

I would like to call the attention of the gentlemen
Dr. Hyatt. present to a fact that I think all will recognize when they come to study any laws whatever—that the hardest thing for the human mind to take hold of, meditate on and retain, is a principle. One person tonight has stated a principle, and that person is Dr. Ottolengui. What are our colleges for, if not to give to the man who graduates something which will certify that he has gained the education necessary to qualify him for a certain work in life? Otherwise there need be no dental colleges at all. We might simply add a course in dentistry to our public schools, and let men pass right from the public schools to the State Board of Examiners. Every man in this room is a citizen, and a part maker in these laws. Then what folly, what an outrage, to allow men to study and to pay their money, and after years of close application to study, give them pieces of paper that are not worth anything! Those who help to pass laws for the State Boards of Examiners are perpetrating a fraud upon the community.

What Dr. Ottolengui has said embodies a principle, and all it needs on our part is recognition. It does not need analyzing or discussing, or anything else. I am heartily in favor of and in sympathy with everything that will advance the idea which Dr. Ottolengui presented tonight, that the colleges must be watched. These very institutions that are supposed to teach dentistry, should be teaching the very highest of our profession. We should not allow them to do otherwise. It behooves us to be interested in these colleges. There is not a man who has made up his mind to become a dentist, who does not belong to this profession. When you consider the matter, you will agree with me that it is our duty to see that the institutions recognized by us and by the State should give to the students—the younger members of the profession—instruction which shall qualify and enable them to practice the world over without further examination.

We blame the colleges, but it is the student that
Dr. Hill. we should chide as well as the colleges. There is not a college in this country that any young student cannot go out of a well educated dentist, if he wishes to.

I do not doubt that it is possible for a man to go
Dr. Ottolengui. to any college and so apply himself as to get an education which will enable him to practice dentistry;

but if he does not so apply himself, he should not be given a diploma to go to another State and bother a lot of examiners to find out that he is ignorant instead of educated. His ignorance should be discovered by his professors, and he should be kept in the institution, and not turned out duly certified to be a dentist.

I wish to thank you, gentlemen, for the interest
Dr. Kirk. that you have manifested in the presentation which

I have made. I am not vain enough to attribute all of it to the manner, but rather to the subject itself. I heartily agree with the gentleman who said that we should recognize the principles involved in this matter, but it seems to me that we are in this case as Dr. Ottolengui has shown us, confronted not so much with a principle, as with conditions.

I am hardly able to understand the suggestion that he made when he said the greatest evil in dentistry had been the Examining Boards, and then proceeded to show the still greater evil which had been the cause of the Examining Boards.

Sin, crime, error, exists in the world; and it evidently has its expression in our dental educational system, and has made the existence of Boards of Dental Examiners necessary. If we were all moral, there would be no necessity for laws. Law is the expression of the will of the people as to what will happen in case a man does a wrong thing. That is the essence of the dental law. Now he has proposed as a substitute for the examination of the graduate, viz., the examination of the college.

I have always embraced the opportunity, wherever it has presented, to examine the details of manufacturing industries. I am interested in these things. I like to get into a factory and see how it is conducted, and I have noticed in factories that it is part of the industry to have a method of inspection. But inspection is applied to the product. An inspector does not go around and look at the machines or the walls or the workmen, but he applies his investigations to testing the character of the product. Now that is what we are doing with the Dental Examining Boards.

A plea is made in defense of the "poor student." Is it such an awful thing for a student to pass a dental examination? Is it a difficult matter for any man here to repeat the multiplication table? If he knows it, not at all; but it is very difficult for the man who does not know it. If he is so nervous he cannot pass the examination, his nervousness is generally due to the imperfection of his training. The qualified man has no difficulty. He has the stamp of qualification put upon him by the officer of the State, in addition to that which he gets from his college. It is worth the effort. Even supposing it were such a hardship as has been declared here, it is at least a sacrifice he should make for the benefit of the community.

Dr. Ottolengui. Dr. Kirk says that in a factory the inspectors examine the product. These inspectors are a part of the factory when they examine the product. That product has come through several departments. If the product is wrong, must not that inspector go back and examine the departments and see where the fault is, and is not the correction then made in that department? If in the same way the dental inspectors in examining their men should find that out of a number examined, a large proportion of them were failing on prosthetic dentistry, would it not be their duty to discharge the prosthetic teacher and get a new teacher?

I am not suggesting that our Examining Boards should examine the colleges, but rather that in examining the product they should bestow upon it the same examination as that made by the inspectors—the professors granting the diploma.

Dr. Kirk. I should say that the essence of the thing is the same in either case, if the State steps in, it is because the factory is turning out, or presumably turning out, an imperfect product, and if it examines at any stage, the implication is the same—that inspection is necessary as a means for securing the best product. The simile of the inspector in the factory is not exactly analogous. The distilling business is inspected by the Government. There the analogy would be nearer.

Dr. Jarvie. May I say one word that will perhaps make Dr. Ottolengui better satisfied with the existing state of things? In New York State, under the Board of Regents, not only are the products of the colleges examined, but the Board of Regents have delegated two members of the Board of Examiners to visit and inspect each of the dental colleges in this State over which they have any authority.

Dr. Ottolengui. What proportion of the applicants are only from this State? Is not a large proportion from other States?

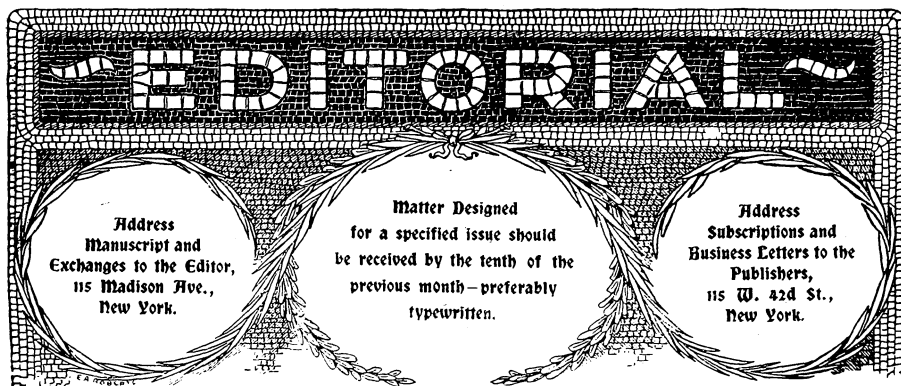
Dr. Jarvie. The majority of our graduates are from this State.

Dr. Kirk. Under properly framed dental statutes the correction of the educational system takes care of itself, because if by the result of the State Board examination, it is shown that any considerable percentage or proportion of the product of a particular school is unfit for use, *i. e.*, unable to pass the State Boards of Examination, it practically reacts upon the reputation of that school and either destroys the industry, or corrects the product, as the case

may be. I want to see the standard placed as high as it ought equitably to be placed.

We are willing to undertake to educate men to meet a proper standard. The schools will meet the requirements. We want as high a standard as is right. Personally I believe that the logical place for beginning the education in dentistry is at the close of the High School course.





The Fifth Wheel of the Dental Coach.

We publish in this issue an important contribution to the subject of dental education and interstate comity in relation to dental license, from the fluent pen of Prof. E. C. Kirk, Dean of the University of Pennsylvania, and Editor of the *Cosmos*. We also present a most interesting discussion of this paper, while in the department of Correspondence will be found a communication on the same subject.

During the discussion of Prof. Kirk's paper, the proposition was made that examinations, as now conducted by State Boards of Examiners might be abandoned, and in their place it might be demanded by the State Boards that the applicant for license should present, not only his college diploma, but also the original examination papers upon which his diploma was granted to him by his college. This, in effect, would set up a system of examination of the college, rather than of the graduate.

In closing the discussion, Prof. Kirk defended the present license examination system as being analogous to methods in vogue in other directions. He cited the case of the factory where the product, rather than the factory, is made the subject of inspection. It may be of interest to analyze this seeming analogy, and to discuss the college product that we may learn what it is.

**The Product
of the
Dental Colleges.**

The dental coach rides easily on four wheels, these being the patient, the practitioner, the teachers and the examiners. The student evidently is the fifth wheel. As such an appendage, to what consideration is he entitled? In the old days of coaching, when long distances were to be traveled, the fifth wheel was carried, in case of accident. Would the careful driver of the coach be satisfied with "any old wheel," or would he not more probably insist that his fifth wheel should be as good as any of the others? Would he not understand that this extra wheel was destined to replace one of the original four? Is it not equally true with our dental coach? May not the dental student become patient, practitioner, teacher, examiner? Has he then no rights, rights which should be respected?

The product of a factory, to follow Prof. Kirk's analogy, is subjected to inspection, and the inspector may reject it on the ground that it does not measure up to the required standard. What is the result? The rejected product is a burden or loss to the factory. Does this part of the analogy hold good with the college product? The college product, being the graduated student, applies for inspection, by a State Board of Examiners, and is rejected as not measuring up to the standard. The burden or loss falls on the young graduate, and not upon the college. The product suffers instead of the factory. Thus, an analysis of Prof. Kirk's analogy shows, first, that it is not analogous, and secondly, that it fails in being analogous by disclosing, that whereas inspection of factory product properly fixes the loss, on the other hand the inspection of the college product improperly fixes the loss, and thus works an injustice.

One reason of this is, that the factory product being a tangible thing, the inspection is actually an inspection of exactly that which the factory produced. Dental education, the college product, being intangible, is not so easily inspected. For example, it is not uncommon for a graduate to fail in attempting to pass one set of examiners, and then upon trying in another State, to have a license awarded to him. This is because the methods of examinations are conducted upon different standards in different States, while again the standards of the various State Boards are higher or lower than those of the colleges.

How can such methods work justly by the student? Suppose that he

goes to a college, recognized by the Faculties Association, and by the Examiners Association. Suppose that he diligently applies himself to the lectures and tasks set by his teachers, passes the college examination, and receives a diploma which is an assurance that the college thinks he is fitted to practice dentistry. Now, if a State Board, after examining him should, in effect, tell him that he is not fitted to practice dentistry, is it not a logical deduction that, either the State Board is wrong, or else that his college certified falsely in giving him a diploma?

**A Test
Suggested.**

It would be interesting to have a legal test of existing conditions made in the following manner. The student having paid for a dental education fitting him to practice his profession, and having received a diploma from his college certifying that he is fitted to practice, upon being refused a license by a State Board, might bring a suit for damages, against his college, on the ground of breach of contract. The case being tried, the verdict would be instructive whatever it might be. If the college were sustained, the State Board would be proven to have illegally withheld the license. Whereas, if the State Board were supported, then it would become manifest that the college standard was not high enough, and this in turn would properly reflect against the Faculties and Examiners Associations which had given such an impotent institution recognition.

In brief, a student attending a college recognized by the National Association of Dental Examiners, should, if graduated, never have difficulty in passing a State Board of Examiners. The State Boards should have some censorship over the colleges for which they assume the responsibility of recognition. And it would seem that the best method of censorship of the colleges, especially those in other States, would be to demand that the applicant should exhibit the original papers upon which his diploma was granted. In this way the "college product" would be "inspected" as it was "inspected" in the college, and the burden or loss could be placed upon the factory, instead of upon the product.



**The Editor's
Alter Ego
Once More**

My position on this magazine is a peculiar one. I am a sort of silent partner to the Editor. At first I had considerable to say, but I have been silent for two years, which is a better record than can be claimed by many. But now that I am saying a word, I ought to explain why I do it. You see, at the outset the Editor found himself in a quandary over the personal pronoun. He did not choose to pluralize himself by calling himself "we," and he did not quite have the courage to say "I." Yet in a few places it did seem that one or the other could hardly be avoided. While he was puzzling over the problem, I, his *alter ergo*, stepped into the breach and assumed responsibility for him on one or two occasions. Since then he has really managed to avoid the pronoun so well that I have scarcely been needed. Now, however, he wants to talk a little about himself, or his "Corner," rather, and I am generously helping him out.

I suppose you all noticed the new "Corner" last month. My! But you ought to have heard the Editor "say things" when *he* saw it. Really the words would not have ornamented a printed page, and I was rather glad myself that they were spoken over the telephone. This is how it all happened. To go back a little, I presume everybody remembers the old "Corner." The carved Oriental mantelpiece held up by the Hindoo

lady and gentleman in summer costume; the elegant bronze dragon; the soft cushions in the cozy corner; and the really comfortable Turkish chair in which the Editor was ensconced toasting his shins before the fire and thinking things. Altogether it was a truly luxurious spot. There was only one trouble about it. It was not true. The Editor never had a corner like that. It was just a dream! A dream of the Editor before he began to edit. He figured it all out in his mind, and the artist figured it for him on paper. After a few months the Editor began to suspect that his dream was not coming true. Still he hoped on. But when the second Christmas approached, with still no chance of realization, his conscience began to prick, and he concluded that he ought not to print that picture any longer. It certainly had a tendency to deceive our readers. No doubt many thought that this business of being an Editor is really the most joyous sort of work; perhaps even some people might go so far as to start in to be editors themselves. That idea brought the Editor up with a jerk. When he came to think of it, he had to admit that since that picture was first published, quite a number of gentlemen had been beguiled from their quiet mode of living and had actually gone in for editing. What if still others were thinking of doing so? Evidently it was time to undeceive folks; to let them know that editors do not lounge in Turkish chairs in the midst of Oriental splendor and sumptuousness.

So, with the best intention in the world, he called in the artist again, and begged him to make a new picture; a picture that would tell the truth. He pointed out that there were but two things in the old picture which should appear in the new. The motto over the mantel, which perhaps few have ever noted before, and the cat, which, however, had been wrongly depicted as asleep. The Editor's cat never does that when there is editing to do; he always gets his paws into things, and does his best in his helpful way to make the Editor's lot a happier one. The artist went off promising to do as he was ordered. Then the Editor got the grip, and the artist got the grip, and the assistants of both lost their respective grips, with the result that the Editor did not see the picture of the new "Corner" till it was published. But when he did see it, that is when, as I have hinted, he went into the telephone box, and called up several and various people to whom he spoke in language that made the electric lights look dim.

Of course it was too late to alter things for that issue, as the magazines were all printed. But this time we have the picture as the Editor wished it to be. In a way it is the same as last month; only it is larger, so that the essential feature may be appreciated. Now the essential feature (you might not notice it if I did not tell you), the essential feature is the relative values, so to speak, of the "copy" on file and the "stuff" in the waste basket. And, by the way, the Editor wanted the whole of the

basket in, but the artist said that it was too large to get on one page and look well, so the bottom is left to the imagination; but the top, you see, is right in view; the Editor insisted on that. And if you look closely you'll observe that it is mostly "Society Discussions" that float into that waste basket. Truly, it is wonderful how much men can say in discussion, and how little of it is worth the price of printers' ink. It is lots of fun to go through about *forty* pages of that kind of thing, and then print about *four*. Yes, indeed! It's lots of fun to be an editor. But the Editor of this magazine has an easier conscience now since he has gotten rid of that luxurious misrepresentation and can show his "Corner" about as it is.

Dr. L. E. Habegger, of Pittsburg, Pa., sends us the following communication: "The phenomenal growth and popularity of *ITEMS OF INTEREST* is undoubtedly attributable to the fact that it contains so much practical matter. Would not its popularity be

enhanced by the addition of another department, in the way of a question box? Young practitioners are frequently confronted by the most perplexing questions which, were they answered through your columns by some reliable authority, would be of incalculable benefit, not only to the questioner but to many others whose experiences must be more or less similar."

There is little doubt that a department as outlined by our correspondent might be useful, but heretofore attempts of this character have not been startlingly successful either in dentistry or medicine, mainly for two reasons; first, improper questions are asked and published, and second, the questions are improperly answered. The questions are improper chiefly because the majority of them emanate from men who lack knowledge and skill in their professions, and who seek advice through the columns of a magazine, in cases which their colleges should have taught them to treat at sight. These men forward a poor description of the case in hand, and ask, "What shall I do?" The reply, telling "what to do," is reprehensible because it is in the nature of a diagnosis without opportunity to see the case. This not only places a premium on incompetency, but may result in actual injury to the patient. The man who, in an ordinary case, knows not what to do, will in describing it certainly omit some salient feature which would have an important bearing on the proper line of treatment to be pursued. There are, however, questions which might be properly asked and properly answered, and many such have been dealt with in this department. This perhaps has not been generally noted, and therefore we will in future make monthly announcement of the fact, as appears at the beginning of this issue. A question of this character is the following:

**Bleaching
with
Pyrozone.**

A correspondent writes as follows: "I should be much gratified, and probably many others also who, like myself, live remote from centers of information, if in your 'Editor's Corner' you would give the general opinion of the profession on bleaching teeth with twenty-five per cent. pyrozone. My own attempts have not been very encouraging. Although I use a battery strong enough to run my dental engine, and am careful to get the pyrozone fresh, and combine it with oxalic acid, and have applied it for several hours, nevertheless the bleaching is but slight and transient."

The failure here reported may be due to either of two causes. First, the stain may have been of such a character as to resist bleaching by pyrozone. Metallic stains would be of this nature, as the green stain from metal posts containing nickel; the stain of copper amalgam; the brown stain of iron rust; the purple stain of gold acted upon by chemicals, etc. Or if the stain was of organic origin it may have been made permanent by coagulation. Where the coagulation is superficial a removal of the surface, with engine burs, permits the bleaching of the remainder of the tooth. The second possible cause of failure may have been that the doctor used the twenty-five per cent. pyrozone as it came from the tube. This is an ethereal solution, and in that form the medicament is a non-conductor of electricity. The following is quoted from Morton's work "Cataphoresis," a book which should be in the possession of all who use electricity in dental practice:

**Morton on Bleaching
by Cataphoresis.** "In this paper I showed that I had recently discovered a very important fact, which bore vitally upon the procedure of tooth bleaching. This was a method of preparing a twenty-five per cent. aqueous solution of pyrozone, or dioxide of hydrogen, very easily. The method was as follows: Take a glass tube and two cubic centimetres of pyrozone twenty-five per cent. ethereal solution, and add to it a cubic centimetre of water. Mix it in the tube and put it in an evaporating dish in a warm place, and in three or four minutes the ether is entirely evaporated and there is left an active watery solution of pyrozone, made very quickly. Otherwise such a strong aqueous solution could not be easily obtained. It does not retain its qualities any great time, as the oxygen escapes. But why an aqueous solution? That is one of the important points. If the resistance of the fluid or medicine that is to be driven in cataphorically is too great, no current passes. And if it is too small, there is no cataphoresis. A certain degree of resistance is wanted to obtain a certain effect. An ethereal solution twenty-five per cent. dioxide of hydrogen, is a bad conductor. If the applicator is dipped in a solution of sodium chloride, or phosphate of soda, and then dipped in the twenty-five per cent. ethereal solution, we can

electrically get the pyrozone into the tooth where otherwise we cannot, but the aqueous solution is much better. There is a difference in this respect that with an ethereal solution nothing can be dissolved in it that will make it a conductor, and with the watery solution such substances can be added. The strong aqueous solution is offered as a great advance on the ethereal solution for cataphoric application, and as an opportunity of getting rid of the clumsy process of covering the applicator with cotton saturated with some foreign substance like sodium chloride or phosphate of sodium."

Dr. Charles Meeker, of Newark, has probably had more experience and success with pyrozone as a tooth bleacher than the majority of practitioners, and his method is therefore appended.

**Meeker on
Bleaching with
Pyrozone.**

"During the past ten years I have tried all the well-known (and those not so well known) methods of bleaching teeth, and in pyrozone I have found the best and most lasting bleach agent so far used. Teeth bleached with pyrozone solutions by myself, under favorable circumstances, have retained their color for over twenty-two months with no appreciable change. The teeth most frequently presented to the dentist are the incisors and bicuspid, their discoloration often marring the appearance of an otherwise beautiful row of teeth. Where an incisor or bicuspid has been filled with amalgam and the oxidation of the silver has proceeded very deep through the enamel on the labial edges, it is time wasted to try and bleach with pyrozone, because H_2O_2 has no affinity for mineral stains. Where nickel posts or screws have been used to hold the frail walls in building down these teeth, and a green metallic stain is presented from the salts of nickel, cut the teeth off. Pyrozone will not bleach nickel, and chemistry has no agent yet discovered which will turn this green to white in teeth, but will promptly remove organic green stains often found on the marginal edges of children's teeth. An incisor or a bicuspid, discolored from a dead pulp, with a yellowish appearance, or as black as a piece of charcoal, can be bleached by pyrozone 25 per cent. solution satisfactorily to the patient and dentist, if properly applied.

The first procedure will be to clean the tooth thoroughly from all decay. With a cavity in the palatine or approximal surface apply the rubber dam to the tooth to be bleached and adjoining teeth if necessary to obtain room; the teeth *not to be* bleached may be covered with wax or vaseline to prevent contact with the pyrozone if of soft texture. When cleaned wash out well with 95° alcohol, apply a stopping of some suitable material, in the pulp canal near the foramen; gutta percha, chloro-percha, or whatever in your practice you are in the habit of using. Of

course it is supposed you render the apex in an aseptic condition previously. After drying out thoroughly with the alcohol wash out with ammonia aqua FF or FFF and dry well; then take a small gold wire broach and twist on it lightly a pledget of bibulous paper and saturate with pyrozone 25 per cent solution, and insert in the tooth and canal, twisting it around on the broach to squeeze out the largest quantity of pyrozone in the tooth.

Withdraw and use a hot air syringe to evaporate quickly; apply also on the labial surface and evaporate that, and continue in this way until the tooth is bleached to the requisite whiteness. A dense hard enamel and dentine will occupy from thirty to sixty minutes, a softer dentine I have bleached in ten minutes. The ether in which the pyrozone is dissolved will penetrate the canaliculi and absorb the protoplasmic matter therein, and some consideration must be given this fact in the subsequent filling of the tooth to prevent a return of the discoloration.

My practice, therefore, at this stage, has been to swab out the tooth with a thin solution of white shellac, gum copal, or Canada balsam, and evaporate well with the air blast; the alcoholic solution of sandarach, Canada balsam, or white shellac will penetrate by capillary attraction quite a distance through the tubuli, and will also make a water-tight coating in any cracks of the enamel that are often manifest in dead teeth; now over that apply a very thin solution of oxyphosphate of zinc; this should be laid just thick enough to prevent the gold showing through the enamel, which of itself is often unsightly; now proceed to fill the pulp canal with whatever material you are in the habit of using, and then the main cavity with gold or amalgam, and your work will prove satisfactory.

I would caution you in opening a tube of pyrozone to have it cold. Do not handle it with the bare hands; wrap a napkin around it; the quickest way to open it is to take a pair of excising forceps and clip off the end and transfer to a low glass-stoppered salt mouth-bottle, making it easy of access in dipping the probe; do not place any metals except gold or platinum in contact with pyrozone solutions.

Dentists Needed in the Army.	Dr. C. F. Davis, of Neosho, Missouri, thinks that there is urgent need of dentists in the American army. In substantiation of this, he relates that one of his friends enlisted as a volunteer and was encamped in the South. This volunteer reported to Dr. Davis
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that he had seen a man suffering excruciating agony because of a defective tooth, his face being badly swollen and his sufferings so intense as to confine him to bed. The surgeon on his rounds prescribed castor oil and quinine. What effect these remedies exerted on the evidently abscessed tooth is not stated.

ITEMS OF INTEREST

**New
Dental Law
of Vermont.**

AN ACT TO REGULATE THE PRACTICE OF DENTISTRY,
VERMONT STATUTES, CHAPTER 191 AND AS
AMENDED IN ACT 114 OF THE LEGISLATURE OF
1898.

SEC. 1. A Board of Dental Examiners is hereby created, which shall consist of five dental graduates or practitioners, to be appointed by the Governor in the month of November, biennially, and to hold office two years, from the first day of the following December, and until their successors are appointed. Vacancies shall be filled by the Governor.

SEC. 2. The meetings of the Board shall be held annually, or oftener on the call of three members, who shall give thirty days' notice thereof in at least three dental journals circulating in this State.

SEC. 3. The Board shall at its meetings examine applicants and grant a license to such persons as they find qualified, on the payment of ten dollars.

SEC. 4. Members of the Board shall receive three dollars a day and necessary expenses for time spent in examining applicants and granting licenses, if the fees received from the applicants during the biennial term in which such service is rendered are sufficient to pay the same; and at the end of each biennial term the Board shall file with the State Auditor a report of its receipts and disbursements, verified by oath, and shall pay to the State Treasurer any excess remaining in its hands.

SEC. 5. If a person without a license practices dentistry for a compensation or reward, he shall be fined not more than one hundred dollars and not less than twenty-five dollars. But this section shall not apply to extracting teeth by a physician or surgeon licensed under the provisions of Chapter 190 of the Vermont Statutes.

SEC. 6. The Board shall keep a book in which it shall enter the name of each person licensed.

SEC. 7. A person who receives a license from the Board shall, within thirty days from the date thereof, cause it to be recorded in the office of the Secretary of State, who shall be entitled to twenty-five cents for recording the same.

SEC. 8. If a person does not cause his license to be recorded within the time required by the preceding section, he shall forfeit the same, and shall not be relicensed until he has paid the Board ten dollars.

SEC. 9. This act shall take effect from its passage.

Approved Nov. 8th, 1898.

CORRESPONDENCE

Examination of Colleges.

Editor ITEMS OF INTEREST:

At the recent meeting in Brooklyn at which Dr. Kirk of Philadelphia read a most admirable paper, touching educational matters of dental students, the discussion that followed was most interesting. I was particularly struck with the suggestion of Dr. Ottolengui, that the colleges should be examined.

We know that if you would "cleanse a fountain, you must begin at the source." Where is this if not in the colleges?

The student pays his money to the college, complies with the course of study, and has a diploma issued to him. For that diploma the college becomes responsible. He has made a contract with them to give him the proper education, and if they have not, then they should be examined and held to answer.

The suggestion that the examination papers of the student be taken and passed upon seems most admirable. In this way the college is examined as well as the student. If rejected on these papers, he then has a remedy, for he can go to them and say, "You have given me a diploma; it is no good. You have taken my money, and I demand that you fit me for practice as agreed."

How long would it be before the cheap colleges would be forced by natural laws to raise their standard to the highest grade? Would it be long before the clamor would be so great that these mushroom colleges would find themselves minus the students, who would go to colleges where the grade was above suspicion?

Would not this method of *examining* the college be the very *surest* way to force them to do right for the most mercenary of motives—to keep the students?

In reply to this, Dr. Kirk said that "he knew of no better way to test the factory than to 'examine the *product*.'"

Now let us see what is the "product." It is what the student knew when he left college, and also what the college thought he ought to know to practice dentistry. What better way to find the product of the factory, than to examine the examination papers? This not only shows what the

student knew, but what kind of questions the college fixed as a test of their *product*.

If we take Dr. Kirk's comparison of a college to a factory, we can go further. If a flour mill puts out a barrel of flour, and it is examined, being pronounced below grade, it is sent back, or a claim made for damage. The factory has to suffer, and hence is careful to keep to the standard. The student is not a barrel of flour, and cannot go back to the college for redress.

Is not a student of more account than many barrels?

Therefore Dr. Kirk's test of the product is admirable as to protecting the public against the student, but effects nothing in touching the source of the bad "*product*."

Here is where Dr. Ottolengui's suggestion that the papers of the student be made part of his examination for license, strikes home.

If the student's papers are returned to him by the State as not satisfactory, he can at once call his college to account. If he have no legal remedy, he could cause a panic among the juniors and freshmen that he left behind him.

How long would it be before this student that had been swindled would spread the news among his classmates, and these men leave that place for a college above suspicion? No legislation would be needed. By a natural law, the mushroom college would be obliged to raise the grade when they found the students leave.

So by all means examine the "*product*," as Dr. Kirk says, but let us examine it in the manner suggested by Dr. Ottolengui.

What we are after is to raise the standard. What better way than to put weapons into the student's hands so that he can go home and say to his fellows: "On the evidence of these papers the State of New York says that I am not qualified, by the knowledge that this college says is *sufficient*." Respectfully yours,

F. B. SPOONER, D. D. S.,
Brooklyn, N. Y.

The Department of Office and Laboratory.

Editor ITEMS OF INTEREST:

As one of ITEMS' readers and admirers, I would like to ask your object in discarding the department in your journal devoted to "Office and Laboratory."

I, for *one*, miss it *very* much indeed. Located, as I am, away from the large cities, I have few opportunities to see the offices of my fellow practitioners.

As to the argument that seeing the illustrations of such excellently appointed offices should discourage the "small fellow," reminding him of his own insignificance, I believe it would tend to renew his efforts to be something more, and better, or at least he should get new ideas in arrangement and equipment that would be of value to him.

As to the statement that a man is advertising himself by giving views of his office, why, it is too absurd to be considered seriously.

ITEMS OF INTEREST circulates among the profession, *not* among our patients. You must agree with me that the reception room table is no place for ITEMS OF INTEREST.

I have spoken to several of my fellow practitioners, and they all stated that the said department was a very interesting one.

In conclusion, let me suggest that you "feel the pulse" of your readers before you permanently discard such department. I feel certain, should you abide by such verdict, we would once more be greeted by "Office and Laboratory."

The department was an innovation in dental literature. We have all seen essays, etc., signed by men whose names are familiar to us all, but we know nothing of their environments. How many of us, for instance, will ever be privileged to view Dr. Williams's office, other than as ITEMS OF INTEREST presents it to us?

Hoping I may have the pleasure of seeing "Office and Laboratory" reinstated, and also that this inquiry may be taken in the kindest spirit, and that I may not be considered as trying to meddle. Fraternal yours,

R. J. HOOD, D. D. S.

(Our readers are invited to give their views pro and con.—Editor.)





Southern Branch of the National Dental Association.

The next annual meeting of the Southern Branch of the National Dental Association will be held in New Orleans, La., on the 9th, 10th, 11th and 13th of February, 1899, in response to an invitation extended by the Louisiana State Dental Society, to hold there a "joint meeting," both Societies to participate in the proceedings, expenses and benefits. The programme, which will be issued later, will present many features of unusual interest, including rare sights through a microscope which is unequalled in excellence in America, demonstrated by Samuel Cowardin, F. R. M. S., whose skill is wonderful, and lantern exhibits by eminent scientific investigators which will equal Williams's. There will also be clinics by noted operators, and a number of valuable papers, contributed by visiting members of the profession from other sections of the country, in addition to those furnished by the members of the Louisiana State Dental Society, and reports and papers from our own scientific committees, which are in themselves of high character. With but few exceptions the chairmen of the committees have done their work admirably well. The financial condition is greatly improved since our last meeting, due partly to the phenomenal list of reinstatements, bringing back into the fold many old and valued members, as well as putting into the treasury the sum of \$250.00 for reinstatements alone. Altogether the Association is in a flourishing condition, and the prospects are favorable for a large and interesting meeting.

Although our meeting will be held during the Carnival season, the day following adjournment being Mardi Gras, we have succeeded in obtaining reasonable hotel rates, thanks to the exertions of the Hotels and Quarters Committee. Subjoined is a list of the hotels and boarding houses, with rates. The railroad rates will be announced later. A single fare rate is hoped for, though not yet definitely arranged.

Hoping that all will attend this great meeting, and enjoy the Carnival sights at the same time, fraternally,

WM. ERNEST WALKER, D. D. S.,
President, S. B. N. D. A.

HOTELS AND QUARTERS COMMITTEE.

Dr. J. Rollo Knapp, Chairman, 620 Canal Street, New Orleans.

Dr. Jos. Bauer, 109 Bourbon Street, New Orleans.

Dr. Wallace Wood, Jr., 625 Canal Street, New Orleans.

Dr. L. D. Archinard, 907 Dauphine Street, New Orleans.

The following is a list of hotels and boarding-houses that the visiting members of the S. B. N. D. Association may find convenient and desirable while attending the meeting. It will be necessary to notify the proprietor at least ten days in advance to secure good rooms, any information concerning which will be cheerfully furnished by Dr. J. Rollo Knapp, 620 Canal Street, New Orleans; La., Chairman Hotels and Quarters Committee, or Dr. Wallace Wood, Jr., 625 Canal Street, Secretary of the Executive Committee of the Louisiana State Dental Society.

HOTELS.

St. Charles Hotel, American plan, \$4.00 a day and up, according to location of room. European plan, \$2.50 a day and up.

Hotel Royal (French quarter), American or European plan, \$2.50 to \$4.00 a day, according to location of room.

Cosmopolitan Hotel, European plan, from \$1.50 up.

Antoine's Hotel (French), 713 to 717 St. Louis Street, \$2 and \$3.

Hotel Denechaud, American or European plan, from \$2 to \$3.50.

Metropole Hotel, American plan, \$2.00.

ROOMS.

Fabacher's Hotel, 50 cents to \$1.00 a day.

Penn's Hotel, 50 cents to \$1.00.

Commercial Hotel, \$1.00 to \$2.00.

Metropole Hotel, 50 cents to \$1.00.

Rooms (French), Nos. 234, 237 and 239 Bourbon Street, \$1 to \$3.

PRIVATE FAMILIES.

Mrs. Hawze, 1350 Magazine Street; rooms with board, \$1.00 to \$2.00 a day. Special rates by the week or month.

Mrs. Jos. B. Davis, 1710 Prytania Street.

Mrs. C. R. Van Wick, 1819 Annunciation Street.

Miss Lulu Bailey, 846 Camp Street.

Central Dental Association.

Nineteenth Annual Banquet.

The nineteenth annual banquet of the C. D. A. will be held at 943 Broad Street, Newark, N. J., in the newly-decorated hall, on Monday evening, Feb. 20th, at 6:30 p. m. sharp.

The Hon. Foster M. Voorhees, Governor of the State, will speak to the opening toast, followed by members of the profession.

Several new features this year. A new souvenir. Vocal and instrumental music. Humorous remarks, etc.

Members of the profession who have participated on former occasions know them to be unique in character.

Dentists, members of New Jersey, New York, Connecticut, Pennsylvania, and other Societies, are cordially invited, and acceptances *to the extent of the seating capacity—175*—will be received to the noon of February 18th. The price per cover will be \$1.50, which must be mailed with acceptance, to Dr. Charles A. Meeker, 29 Fulton Street, Newark, N. J., before date above mentioned. No places reserved. Select your seats. Menus mailed on request.

To American Dentists Practicing in Europe.

At a special meeting of the Foreign Relations Committee of the National Association of Dental Faculties of America, held in Cincinnati, Ohio, Dec. 27th, 28th and 29th, 1898, in accordance with the instructions given at the annual meeting of the Association, held in Omaha, Neb., August, 1898, certain of their confreres living in Europe were appointed to form the nucleus of an advisory body, the membership of which it is their purpose to increase to the number of three for each of the principal countries of Europe, as soon as they shall become thoroughly convinced as to the best manner of organizing such Board, and fully informed concerning nominations for membership therein.

The Foreign Relations Committee feels itself restricted in its action by the instructions given it by the National Association, and cannot at present clearly see its way to do more than to lay the foundation for future more comprehensive action. It believes that any precipitancy on its part, in the absence of a full and clear comprehension of the exact status of American dentistry in Europe, might do great injury to the cause of

American dental education, and prejudice us greatly in the eyes of foreign professional men. The members also realize that until there is a better understanding of professional affairs in Europe by Americans in this country, it would be easy to injure our colleges by creating a prejudice that would be baseless and unjust. No possible harm can result from the exercise of great care, and even from delay on our part in the completion of the appointment to this Board, while radical action in the absence of definite knowledge, would be certain to work evil.

Hence the Committee has not felt itself justified in doing more at present than to make a few appointments that are entirely unopposed, and to go no further than to commit to such members of the Foreign Board the responsibility of examining the credentials of students making application from foreign countries for matriculation in American dental colleges, the advising of the Foreign Relations Committee of the requirements demanded for practice in such countries, the number, names and professional status of the holders of American dental degrees abroad, and the giving of such other information as may prove of benefit to the National Association of Dental Faculties. For the information of such Foreign Board the Committee has unanimously adopted the following expression of opinion:

FIRST. "The proposed Board shall be known as the European Advisory Board of the Foreign Relations Committee of the National Association of Dental Faculties of America.

SECOND. Its objects shall be to ascertain the standing and reputation of institutions in foreign countries giving instruction in dental subjects, the character of instruction imparted, the different courses of study, the length of term, the requirements for admission, and the form of certificate given entitling the holder to practice dentistry in such foreign countries.

THIRD. To examine the certificates of Europeans who purpose coming to this country to complete their dental studies after a course more or less complete abroad, to report upon the value of such certificates, and how much credit should be allowed them in American dental colleges as a consequence, and to communicate to the Chairman of the Foreign Relations Committee any further facts that may serve as a guide to the deans of American dental colleges in the reception and proper assignment of such students.

FOURTH. To furnish the Foreign Relations Committee with the names of such persons as may have come, or who may purpose coming, to the United States for professional instruction, and whom they may believe to be unworthy reception in American colleges, with the facts upon which such belief is based.

FIFTH. To obtain for the Foreign Relations Committee, as far as is practicable, a complete list of all American graduates practicing in Europe, giving names of the schools that issued their diplomas, together with date of graduation, and the general reputation and status of such graduates.

The Foreign Relations Committee desires explicitly to say that while it is not authorized to extend the scope of its present action, and deems it unwise on its part to go further in defining the duties of the European Advisory Board, it is heartily in sympathy with American dental graduates abroad in their efforts to obtain a due recognition of the American dental degree in Europe, and pledges itself, whenever it believes the time is ripe for definite action, to take any steps which in its opinion will tend to bring about so desirable an object.

The Committee desires to announce the following appointments to the European Advisory Board:

Great Britain.....	DR. W. MITCHELL, London.
Holland and Belgium.....	DR. J. E. GREVERS, Amsterdam.
Denmark, Norway and Sweden..	DR. ELOF FORBERG, Stockholm.
Russia	
Germany	
Austria and Hungary	
Italy and Greece.....	DR. ALBERT T. WEBB, Rome.
France.....	DR. J. H. SPAULDING, Paris.
Spain and Portugal.....	
Switzerland and Turkey.....	DR. L. C. BRYAN, Basle.

<i>Committee.</i>	{	S. H. GUILFORD,
		J. D. PATTERSON,
		T. W. BROPHY,
		H. W. MORGAN,
		W. C. BARRETT, Chairman,

208 Franklin St., Buffalo, N. Y., U. S. A.

Vermont State Board of Dental Examiners.

The members of the Vermont State Board of Dental Examiners are as follows: Dr. Thos. Mound, Rutland, president; Dr. Geo. F. Cheney, St. Johnsbury, secretary; Dr. S. D. Hodge, Burlington; Dr. R. M. Chase, Bethel; Dr. K. L. Cleaves, Montpelier.

**Programme for 1898-9 of the Odontological Society of Rockford,
Auxiliary to the Odontological Society of Chicago.**

Organized November 19, 1897.

Dr. C. A. KITCHEN, Pres.

Dr. C. B. HELM, Sec.

Date.	Essayist.	Subject.	Discussion opened by
Dec. 16	Dr. J. L. Palmer	Care of Children's Teeth.	D. E. S. Tebbetts Dr. C. B. Helm
Jan. 20	Dr. J. E. Harned	Anesthetics and their Use in Dentistry.	Dr. H. C. Gill Dr. M. A. Banks
Feb. 17	Dr. A. M. Harrison	A Dentist's Record and Account Book.	Dr. C. J. Sowle Dr. M. R. Harned
Mar. 17	Dr. C. B. Helm	The Border Line Between Crowns and Fillings.	Dr. C. A. Kitchen Dr. E. H. Allen
Apr. 21	Dr. J. J. Reed	Habits and Conditions of the Mouth.	Dr. B. F. Ellis Dr. A. M. Harrison
May 19	Dr. E. S. Tebbetts	Making Dental Instruments.	Dr. J. L. Palmer Dr. J. J. Reed
June 16	Dr. M. A. Banks	Sulfuric Acid in the Treatment of Pulpless Teeth	Dr. F. C. Gill Dr. J. E. Harned

SUMMER VACATION.

Oct. 20	Dr. E. H. Allen	Comparison of Filling Materials.	Dr. Bryant Kerr Dr. M. L. Hanaford
Nov. 17	Dr. C. A. Kitchen	President's Resumé of the Year's Work.	Discussion General

District of Columbia Dental Society.

At the last annual meeting of the Washington City Dental Society, the name was unanimously changed to the District of Columbia Dental Society, and the following officers elected to serve the ensuing year: President, Dr. Chas. W. Appler; vice-president, Dr. Robert W. Talbott; secretary, Dr. H. Jerome Allen; treasurer, Dr. Mark F. Finley; librarian, Dr. Henry B. Noble; essayist, Dr. William A. Lyon.

H. JEROME ALLEN,
421 H St., N. E., Washington, D. C.

The Oregon State Dental Association.

At the adjourned annual meeting of the Oregon State Dental Association, the following officers were elected for the ensuing year: Dr. John Welch, president; Dr. R. L. Lincoln, first vice-president; Dr. E. M. Hurd, second vice-president; Dr. Arthur W. Chance, secretary; Dr. C. E. Stalk, treasurer.

ARTHUR W. CHANCE,
Portland, Oregon.

The Chicago Dental Society.

The Chicago Dental Society will, on Friday and Saturday, Feb. 3 and 4, celebrate its thirty-fifth anniversary by holding a two-day meeting for clinics, papers and discussions, ending with a banquet on Saturday night. A cordial invitation is extended to the profession to be present.

Printed programmes will be ready in January, and may be had upon application.

JOSEPH W. WASSALL,
Secy. Com. of Arrangements.

Resolution Passed by the Detroit Dental Society, Jan. 9, 1899.

Whereas, For the prevention of human suffering the necessity undoubtedly exists for the appointment of dentists to the U. S. Army.

Whereas, With the proposed enlargement of our national defence, parts of the army are to be stationed in countries and localities where dentists are exceedingly scarce, and where the quality of dental services will be questionable.

Whereas, We, members of the dental profession, believe it is now time that this Government put a stop to the practice of wholesale extraction of teeth by the Hospital Stewards and other medical officials, thereby depriving men of teeth that could be saved and made serviceable for years.

Whereas, A great deal of suffering from the teeth exists, and owing to the largely increased duties of the Medical Department, that branch of the service is inadequate and unable to properly care for the human mouth. Therefore be it

Resolved, That this, the Detroit Dental Society of Detroit, Michigan, do all it can as a society, and as individuals, to secure the enactment of a law by the Congress of the United States now assembled, through its Senators and Representatives, or by any legitimate means, that shall provide for the appointment of dentists to the Army of the United States.

DR. L. C. MOORE,

Chairman Committee on Resolutions.

A similar resolution relating to the Navy was also adopted.